

## PART VII.

### INFANTRY IN THE TRENCHES.

Infantry in the trenches is usually in a *position in readiness* for combat, a situation which is sometimes prolonged for several months and permits of thorough organization.

During very short crises, it is *attacked* in its trenches or it moves out to *attack*.

These three situations will be treated in succession.

#### CHAPTER I.

### INFANTRY IN A POSITION IN READINESS FOR COMBAT.

*The plan of defense.*—"The commander of troops in a position in readiness must study in advance the various missions that may eventually be given him, to keep himself informed as to the situation, and to reconnoiter or cause to be reconnoitered the terrain involved. In this way he will be ready, when the moment comes, to enter into action with his troops without loss of time and under the best of conditions." (Field Service, art. 121.)

This regulation contains in brief form the duties of the officers of a company detailed for the defense of a strong point or sector, as defined in "Principles of fortification." (Part IV, Chap. VI.)

Every commander of a unit, large or small, must establish a *plan of defense* with a view to fighting superior forces on the ground which has been intrusted to him.

*This plan must be brought to the knowledge of all his immediate subordinates.*

It is based upon knowledge of the hostile line and of the terrain, from which result :

The determination of the probable points of attack ;

The choice of the principal points of resistance (active elements or sectors) and the strength of the force that will occupy them ;

The preparation of counter attacks;

The organization of approaches, food supply, evacuations, and communications.

A paragraph of the plan of defense is called *plan of observation* and prescribes the observation from the ground. (See this organization in Chap. VI of Part IV.)

The plan of defense should embody the following principles:

1. *The defense in depth is made by stopping the enemy at successive points skillfully selected in advance and prepared for resistance.*

2. *Every element of trench, every isle of resistance (barri-  
cades, organized trench crossings, small works, and the like)  
must have a commander responsible for its defense and main-  
tenance.*

3. *Troops detailed to the defense of a portion of the terrain  
must never abandon it, no matter what happens.* It is neces-  
sary to remove from the minds of the troops every ambiguity  
on this subject; the existence of stronger lines of defense in  
rear of the trench occupied, the echeloning of the company into  
*advanced elements* (squads, half platoons) and *main body* placed  
farther to the rear, *never* implies for these advanced elements  
the authority for falling back on the main body, even if they  
consider their situation critical. All resistance must be pro-  
longed *on the ground, in the position where the troops have been  
placed*; resistance ceases only when one is placed *hors de  
combat* or has received from his superior commander a formal  
and authentic order (preferably in writing) to go and occupy  
another position. Every order arriving verbally by an uncer-  
tain route must be considered null and void (to be particularly  
mistrusted are orders for a retreat passing anonymously along  
the firing line). The "conduct to be observed in case of attack"  
is given to the smallest elements, and must always be very clear  
on this subject.

4. *All ground lost is recovered by an immediate counter at-  
tack delivered by troops reserved for that purpose.* In a strong  
point (company), one or more support platoons may have the  
mission of local counter attacks in certain contingencies an-  
nounced in the plan of defense of the supporting point. The  
company occupying a part of a line has no *reserve*. The counter  
attacks are especially provided for and launched by the battalion

commander, who has at his disposal for this purpose the *reserves* of the strong point (companies, half companies, or platoons). *The plan of defense of the strong points* covers the principal contingencies of the penetration of the hostile line in front of the battalion and provides the proper counter attack for each case. Each company or platoon receives copies of the part of the plan that concerns it. The mechanism of the counter attack is explained later. (Chap. II.)

*Reconnaissance of the strong point.*—When a company is to go into trenches the reconnaissance must be made in daytime by the captain and the commander or a noncommissioned officer of each platoon. It is sufficient to leave in rear an officer or non-commissioned officer to lead the company during the night to the beginning of the trenches. In addition, the reconnoitering party includes the communicating file of the captain and four guides (one per platoon). The four guides return to the rear to meet the company at the place and hour agreed upon, while the rest of the reconnoitering party remains in the trenches to familiarize themselves with the plan of defense and the terrain. This personnel may be reduced when the company is to be the battalion reserve in the strong point.

*Plan of defense of the strong point.*—The four platoon commanders assembled at the command post of the captain, take note of the plan of defense of the strong point and the explanations of the captain of the company relieved. The captain then distributes the four platoons among the different *elements* of the strong point. He prescribes the groupings of the grenadiers and automatic-rifle sections that it may be necessary to make up in addition to the usual sections, in accordance with the provisions of the plan of defense. Each platoon commander, accompanied by his communicating file and his guide, then takes post near the platoon commander of the platoon that he relieves. The relieving captain is not at all obliged to pattern his dispositions and instructions after those of his predecessor, unless these dispositions have been ordered by superior authority. However, to facilitate relief by night, always a delicate operation, it is recommended the relief be made platoon by platoon and even squad by squad, and those modifications which the captain may wish to make in the interior distribution of the forces in his strong point be postponed until daylight.

*Plan of defense and instructions for each platoon.*—Each platoon commander inspects quickly the elements of trenches and the shelters which his platoon is to occupy, and also the command post. He then sends back his communicating file to the captain and his guide to the head of the company, after having indicated to the latter the distribution of the squads. The guide returns by the approach trench (a signpost indicates if movement in only one direction is permitted), takes note en route of the necessary reference points, signposts, and the like. The platoon commander obtains from the platoon commander whom he relieves the extract of the plan of defense that concerns the trench or trenches occupied by the platoon and has the terrain pointed out to him in detail. This extract of the plan of defense shows: For the platoons in the first line, *the precise rôle of each of the elements of trench or isles of resistance of which the defense is intrusted to the platoon* (for example, to cover with fire such and such part of the terrain in front, to flank such and such a neighboring element, and so on); for the reinforcement platoons, *the combat stations in case of alarm, the rôle of reinforcing or counter attack to play in the contingencies covered by the plan of defense of the strong point.*

*Examples.*—Figure 164 gives an example of the distribution of a company taken from an actual case.

This disposition is, however, more complex than the usual case on account of the decided salient and reentrant which the terrain and other circumstances have given to the firing line. Three platoons occupy, respectively, the elements A-B-C, D-E-F, G-H-I. The fourth platoon is in support at K and L. The firing line is thus held by five squads and two listening posts. Positions for flanking defense by machine guns or automatic rifles are prepared at M-M<sub>1</sub>-M<sub>2</sub>. The *central platoon* D-E-F will receive, for example, the following instructions: Secure the protection and maintenance of the firing-line trench from R to S, of the communication trench E-K to the crossing T, and of the communication trench E-I to U. *Half platoon at salient D:* Watch and cover the hostile line from N to O. *Squad at reentrant B:* Flank the faces E-D and E-A, defend the machine-gun M<sub>1</sub>. In case the enemy should take G, fire on the interval G-R. *Squad at the work F:* According to orders, man the inter-

val D-E, man the interval E-A, or, in case the first line is captured, prevent the enemy from debouching from U-E-S.

Figure 268 offers an example of a simpler disposition.

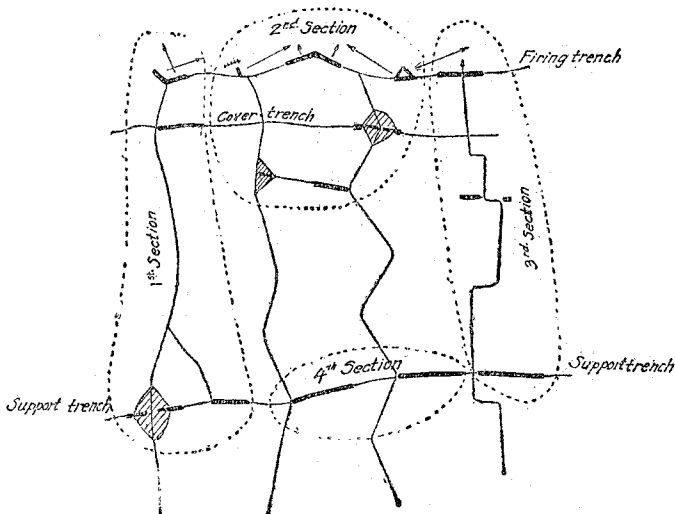


FIG. 268.

A fourth of the strength is in line, the remainder is divided between the cover trench and the support trench. The platoon in the center alternates with the platoon in support in occupying a redan and two small flanking works. The other two platoons each have to guard a trench in the first line, using their squads in rotation.

*General remarks.*—The task given to a platoon occupying a part of a line, either in trenches or in combat, is always very simple; the difficult part is to communicate it to subordinates

with such precision and clearness that at the critical moment no one will allow himself to be turned aside from his rôle by the obstacles, foreseen or unforeseen, that are sure to arise. *To do exactly what has been ordered, to carry out to the letter what has been recognized as necessary* in defense, as in all other operations of a platoon, is the whole secret of success.

#### TACTICAL MEMORANDUM FOR THE CHIEF OF PLATOON.

When the platoon commander has thoroughly grasped the particular rôle of his platoon in the whole plan of defense, he easily deduces from it all the measures of tactical detail *which will be his constant occupation during his sojourn in the trenches*. He receives from his predecessor all the information which may be summed up in the following memorandum, which also applies to every chief of a trench or small work:

1. *Extract from the plan of defense.*—Rôle of the trench in the entire position; detailed sketch of its organization; rôle of the adjacent platoons; communications with them and with the captain.

2. *Defense.*—Organization of the defense of the trench (firing positions, fields of fire, flanking arrangements, positions for machine guns and automatic rifles, positions for grenadiers, positions for trench weapons, and points exposed to fire; position, strength, and capacity of shelters; arrangements for protection against gas; nearest dressing stations).

Accessory defenses. Obstructed passages through the wire entanglements.

Information concerning the enemy; sketches of the hostile trench; summary of the results of observation, reference points.

Dangerous points; projectiles received; menaces of mining operations; unexploded projectiles.

3. *Guards.*—Lookout posts; instructions of particular lookouts; listening posts; patrols in front of the accessory defenses; rounds.

4. *Matériel.*—Niches for cartridges and grenades; fuses; condition of grenades and fuses; shields; periscopes; tools for earthwork or demolition; various materials that the captain has been able to install permanently; appliances for defense against gas; nearest water supply.

5. *Works in progress or ordered.*—Trenches to maintain in rear.

6. *Location of the latrines.*—Holes for garbage; state of cleanliness or lack of cleanliness of the trench.

In order to facilitate the transmission of instructions, each chief of a trench must make note of the preceding information and pass it on in writing to his successor.

*Distribution of the platoon between the firing trench and the support trench.*—As the occupancy of a strong point by the same company may last several days, it is necessary to define clearly for each fraction (and in each fraction for each man) the alternations of rest and duty, rather than to let all the men stay in the trenches in a situation that is neither rest nor combat. The principle is *to keep in the firing trench only the men strictly necessary for watching, ordinary fighting, and work* (strength varying from one-third to one-sixth of the company). The other men are in the cover trench or the support trench at rest or occupied in other work.

According to circumstances, the captain causes the platoons of the company to take the duty in the front line in rotation, or, better, gives to two or three of them a definite frontage, disposing them in depth, and keeping one or two platoons grouped in the support trench as a reinforcement (see Figs. 164 and 268). The platoon commander then organizes his service by causing squads or men to alternate on the firing line (lookouts, grenadiers, riflemen, and so on).

The only absolute rule is that *every trench of the firing line must have at all times a responsible chief present in the trench* (sergeant of the guard) and that a strict discipline must reign among the men who are there at their posts of combat.

They must be relieved often enough to enable their attention to be continuous, and care must be taken that they are not kept in the firing trench when their turn has come for relaxation or sleep.

For the same purpose the captain details by roster an officer of the guard (platoon commander) charged with watching the whole front of the strong point.

*Organization of the guard and the harassing fire.*—The guard of the trenches is intended not only to prevent the enemy from rushing them, but also to observe continually the details of his

defensive organization, and to take advantage of his slightest movement to inflict losses.

*Choice and training of lookouts.*—All the men of the company can fill the rôle of sentinel alongside of a bombproof, but all men are not capable of observing. Some men are more apt than others; aptitude is developed by exercise. *The training of good observers is a most important task.* It is necessary that the observers shall not only know how to *see without being seen*, but that they shall also have tenacity and patience in observation. Trench warfare permits the training of *accomplished* observers. Their training rests on the officers of the company, who control the daily service of their observers. It is well to have them make notes of their observations. Each platoon should have at least *six observers*, who should be good shots and have good eyesight. In combat in open country two accompany and assist the platoon commander, one of whom observes constantly the signals of the communicating file of the platoon, who marches at the side of the captain. The other four may serve as scouts. In the trenches they alternate in serving as *lookouts*. *The communicating agents of the captain and of the battalion commander* serve them as observers. They divide up the terrain to be watched, observing the movements of the enemy and those of their own troops, and the signals. *In every unit the chief indicates without delay to his superiors (and to the artillery) the points which afford a good view over the surrounding country.* The principal arrangements for observation have been described in Chapter VI of Part IV, "Principles of field fortification."

*Requirement of harassing fire.*—The *harassing fire* must be the constant care of every platoon commander of all troops to keep up the continual fear of retaliation. *The war of the trenches is neither a relaxation nor guard duty; it is a phase of the battle.* It is necessary that each hostile company shall go back from the trenches with a loss of at least 20 men. It is necessary that the adversary shall feel in front of him a vigilant hatred, and know that we wish no rest before his defeat. The organization of the harassing fire with the rifle grenades has been explained in detail in the tactical employment of this arm (Chap. V of Part IV).

*Lookouts.*—The lookouts always keep their rifles in their hands; they are forbidden to sit down. They must remain con-



tinually at their posts, even during violent bombardments. They receive general instructions for the following cases: Attack by surprise or preceded by a bombardment; attack preceded by a discharge of gas; arrival of bombs. They receive, in addition, certain special instructions for each post.

*Sector lookouts.*—Some men, called sector lookouts, watch a clearly defined part of the hostile defenses. It is advisable to establish the sectors slightly oblique, so as to protect the lookout from shots from the front when he has to fire. The sectors overlap slightly. The sector lookouts observe either through a loophole placed obliquely in the parapet or with a periscope. Equally

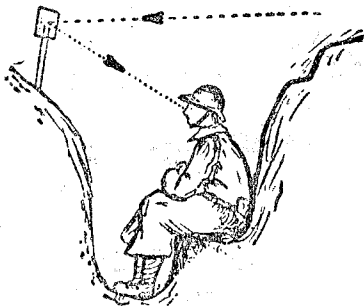


FIG. 269.

good for a general view of the hostile trenches is a small mirror fixed on the end of a stick. (Fig. 269.) The officer of the guard is informed by signal of the least change in the appearance of the hostile line (accessory defenses, earth moved, and so on) and of every indication of preparation for an attack. The written instructions for each lookout post are completed, if possible, by a panoramic sketch, with reference points. (Fig. 270.)

*Lookouts for observation points.*—Other lookouts keep special watch on points to which attention has been drawn by preceding observations and upon which it may be hoped to place a successful rifle shot. They endeavor to remain unseen and to observe

through a very narrow and concealed loophole. Patient, attentive observation always ends in furnishing valuable information as to the régime of the opposing troops (hours of relief, of food supply, and the like). The dust raised by a shot, the smoke of a cigarette, may reveal a loophole habitually occupied; it should then be watched with a field glass and an attempt made to lay upon it a rifle supported on a rest or an automatic rifle. Earth being thrown up discloses a fatigue party at work, a shelter under construction. A slight elevation or some smoke betrays the location of shelters. The study of the general plan and of aerial photographs may make it possible to locate on the ground the trench crossings and the important approaches upon

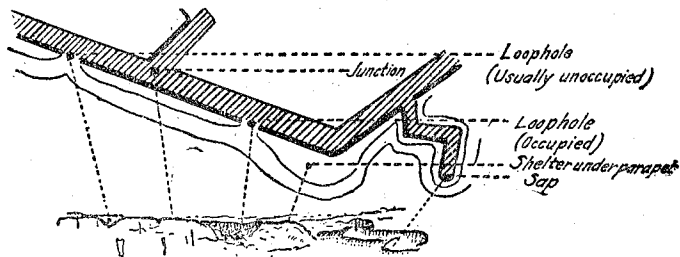


FIG. 270.

which it will be well to fire with the trench weapons during the hours when these elements are thought to be occupied. When the enemy bombards our lines curiosity will cause his men to look through their loopholes to see the effect produced; it is the moment to get at them. All other methods are good for drawing them out—cries, mannikins, pretended fires, placards, and the like. Effort should be made to discover his machine guns, flanking pieces, mine throwers, observation points, and so on, to interpret ingeniously the slightest abnormal object or indication that appears in front. It is indispensable to have this information in case of attack on our part and also to keep up *the daily wear and tear of the enemy*.

*Listening posts or advanced posts.*—These serve to watch the accessory defenses when they are of great depth, or to flank the front of the trenches. The trench connecting them with the firing trench should be arranged so that it can be obstructed or barricaded instantly by the sentinel who retires after giving the alarm. (Fig. 272.) In addition, it should be placed

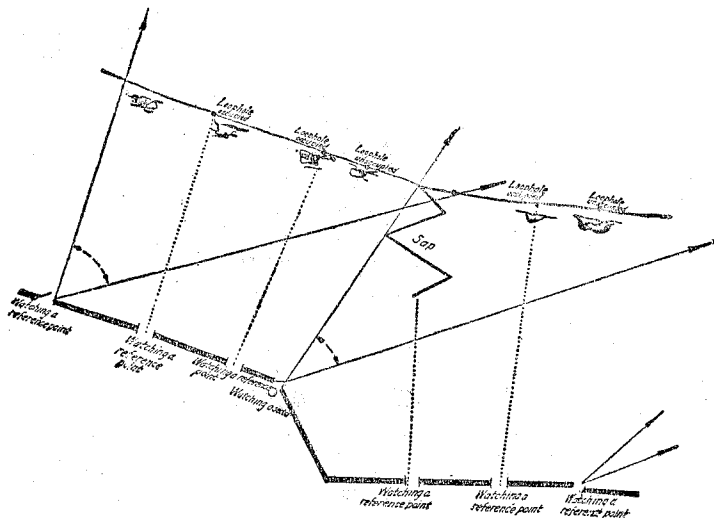


FIG. 271.

without a dead angle under the fire of a loophole in the trench, oriented especially for this purpose. Listening posts should not be misused, as they are rather easy objectives for surprise attacks and they rob the firing line of places for several loopholes. When they are opposite to hostile advanced posts, they may be organized for a triple group of grenadiers. (Fig. 273.)

*Lookouts of the support and reserve trenches.*—Lookouts are placed near the command posts of the support and reserve trenches to observe the whole terrain and repeat the various signals from the firing trenches.

*Patrols.*—The guard is reinforced at night by patrols whose field of action and strength depend on the proximity of the enemy. They are armed with shotguns, pistols, and offensive grenades. They are detailed by the captain or the battalion commander. Their strength is sufficient to enable them to

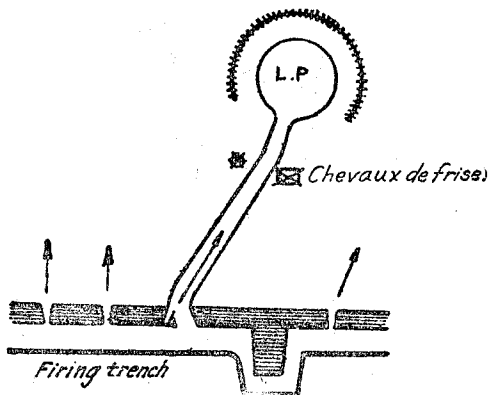


FIG. 272.

bring in wounded men and prisoners, and, if necessary, to establish a line of communication back to the point of departure. They always have a definite mission: to go and reconnoiter such a point, to prepare an ambushade at such a place, to remain there and listen a certain fixed time, and so on. The success of a patrol depends on the choice of the commander—on his will and audacity. His men protect and escort him, but it is he who must go and see. It is necessary to fix the hour and the point where they shall pass out of the lines

(through a concealed passage prepared in the wire entanglements or by way of a listening post), their itinerary, the point and the probable hour of their return within the lines. All this information should be given at the proper time to the sergeants of the guard and to the neighboring companies, in order to avoid mistakes. The lookouts are notified that the patrol may be obliged to withdraw by an unexpected route. The chief of the patrol must have a luminous compass. He distributes his men at variable distances, depending on the darkness of the night, so as not to lose them; he assures

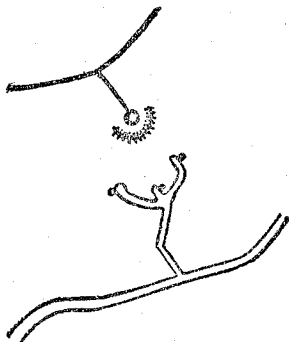


FIG. 273.

himself before starting that their equipment will make no noise; he tells them the mission and how to conduct themselves; he arranges with them a few very simple signals. Patrols are an excellent means of hardening the soldier. Volunteers should be called for only in exceptional cases.

*Organization of defensive fire.*—Although in the normal case only the “active segments” of the line of fire will be occupied, the platoon commander must arrange for the occupation of the entire line and for firing *either through the loopholes or over the parapet*. Some of the traverses should be loopholed for the in-

terior flanking of the trench. Means of obstruction should be prepared. These at the ends of the trenches should be especially defended. A loophole should always be examined to determine: That it is not obstructed; that it is well oriented; that it sweeps the ground thoroughly; that it is suited to the height of the man. After several cleanings of a trench the loopholes are often found to be too high above the bottom; they must be made over or benches must be used. The loopholes should be assigned to the men in advance and the men should be placed in the shelter in regular order so that in case of alarm the man sleeping nearest to the exit of the shelter will run to the farthest loophole.

*Organization of communications.*—Communication between the captain and the chief of platoon is maintained by messengers (communication agents) or by square signal flags. The company has two signal lanterns that serve to parallel the telephone lines to the battalion commander or to a neighboring company. Every telephone line should be paralleled by a system of visual signals, provided for in the plan of defense, and should be operated at least once a day as a test (for example, to send one of the regular daily reports). Note should be made of information sent by adjacent stations. *The fact that mechanical means of transmission have failed under given circumstances will not be understood to excuse a commander for remaining in ignorance of important changes occurring in the situation of his command or for not having exercised the necessary personal control over the progress of events.*

*Organization of work.*—The platoons are charged with the duty of maintenance of the trenches, parallels, and approaches that they occupy, the constant improvement of their accessory defenses, and the new works required in their terrain (principally shelters). The captain also assigns to the platoons the maintenance of the trenches in rear and the general fatigue work of the strong point, utilizing especially the platoons in support. The rôle of a platoon commander is to divide the whole task among working groups of small strength, each under a chief. This chief is made responsible for a well-defined task entirely possible of execution. The platoon commander shows him by day what he will have to do at night, has him place all the necessary marks so that he can find his way in the darkness, and sees

that the chief of the group has the necessary wooden measuring rods for verifying at all times the dimensions to be followed. The platoon commander suggests to the captain new works which he considers useful for improving the flanking arrangements or the communications. For example, in the case of figure 164, the connection of the works B and F.

*Communication with the adjacent platoons.*—Finally, with a view to developing *cohesion*, it is made the duty of the platoon commander to be in communication and to maintain frequent and personal relations with the chiefs of the adjacent subdivisions, with the trench artillery, the sappers and miners working in the strong point, and so on; he should visit the observation points giving a view over his terrain and over the terrain of the units alongside of him. In order that he may be able to devote the greater part of his time to these occupations of a tactical nature, he requires his subordinates to familiarize themselves very promptly with all the details of the service of the trench and makes them responsible for it.

#### DETAILED SERVICE OF THE TRENCH.

*Relief.*—Upon the arrival of the platoon, each squad takes its place; the lookouts, the listening posts, the noncommissioned officer of the guard take up their duties as prescribed for the night.

The platoon commanders and the company commander who are being relieved do not withdraw till they have completely transferred their duties and have received notice from their successors that they are no longer needed. Their successors then become responsible, and make report to their immediate chiefs that the relief is accomplished. In case of attack during the relief the command continues to be exercised by the chiefs of the units that are being relieved.

*Leaving the trenches.*—Have the men get ready before the time of relief. See that the portable tools and the camp equipment are carried away. Leave in the trenches the grenades and the cartridges in excess of regular individual equipment. Inspect the trench to make sure that nothing is overlooked. *Leave the trench, the shelters, and the latrines in the highest state of cleanliness.*

*Faults noted during the execution of reliefs.*—In their haste to leave, the officers and noncommissioned officers of the subdivisions relieved transmit only incomplete instructions. The incoming officers and noncommissioned officers confine themselves to replacing the sentinels and housing the men in the shelters; they do only what is indispensable. The information transmitted is very vague, and frequently consists merely of a statement of the signs of more or less extensive activity on the part of the enemy. Consequently the new occupants, poorly informed and oriented, are for some time at the mercy of an attack, and it happens occasionally that they fire on other portions of our line.

*Service by day and by night.*—The duties should be known by all in advance. The forces to be placed on duty by day and by night are fixed by the captain, who is responsible for the preservation of the strong point.

*By day:* The service requires a certain number of lookouts per platoon; in addition there may be detailed by platoon or from the company a *picket subdivision*, which remains in one place, without taking part in distant fatigue or other work.

*By night:* The necessary men are placed in line in the intervals between the lookouts to assure the protection of each trench. Frequently the listening posts are occupied only at night. Night and day there is a sergeant of the guard in each trench and an officer of the guard (chief of platoon) for the company as a whole.

*Employment of time.*—The chief of platoon regulates the employment of the men who are not on duty. He requires them to rest in the shelters or details them for the different pieces of work that he orders or that are prescribed for him. He should know at all times who is asleep, who is on guard, and who is at work.

*Rounds and patrols.*—Rounds have for their object the control of the service of the company as a whole. They are made by officers and noncommissioned officers (especially those of the platoons in support). The captain prescribes the number of rounds which the patrols shall make and fixes the hours of departure. He receives a report at the termination of each round. Patrols may also be ordered by the captain (see above).



*Alarms.*—Frequent calls to arms must be made to make sure that every man goes quickly to his place and knows what to do when he gets there. This is the best method of detecting faulty arrangements. A daily call to arms will be made before day-break. It will be followed by a roll call. Gas alarms will be made.

*Uniforms, etc.*—The helmet will invariably be worn; *the gas mask must always be kept within easy reach of the hand*; the men must be completely equipped; the intrenching tool will be attached to the waist belt at all times. Haversacks, pouches, canteens, blankets, etc., will be arranged in orderly fashion in the dugouts.

*Rifles.*—In the firing trenches the men will always keep their rifles in their hands, even during meals. In the other trenches small-arm racks may be constructed at the doors or inside of the dugouts. If a man leaves the immediate vicinity of his dugout, he takes his rifle with him. No one should ever be found in the communicating trenches without his rifle. At night every man will sleep with his rifle at his side. With the exception of those fixed in frames, rifles should never be left in the loopholes. The former will be withdrawn whenever a bombardment is anticipated. The rifles will be covered with a sleeve of cloth tied on with a string. *Introducing a plug of any kind—paper, cloth, wood, or grease—into the muzzle of a rifle is prohibited.* To avoid accidents and weakening the mainsprings, rifles will be habitually kept unloaded. The magazines are always kept charged, usually with only four cartridges, so as to avoid weakening the spring.

*Cartridges.*—The recesses for ammunition should be kept dry, and their location should be known to everybody. Only a few packages will be opened beforehand. Sticking the points of the cartridges in the ground is absolutely prohibited. The empty cartridge boxes are collected by each platoon and sent to the company property depot.

*Hand grenades and rockets.*—Grenades and rockets will be kept, if possible, in zinc lined chests, well protected from the action of the weather. Very small recesses, capable of holding a few grenades, will be constructed here and there along the trench, behind barricades, and in the dugouts.

It is well to put ammunition and grenades in sand bags containing an invariable number. The following numbers are convenient:

Ammunition, 4 bandoleers, weight about 16 pounds.

Grenades F1, 10, weight about 15 pounds.

Grenades OF, 20, weight about 13 pounds.

Grenades AB 1916, 6, weight about 9 pounds.

Grenades VB, 10, weight about 11 pounds.

This division allows a man already loaded to carry one of these sacks. The carriers, by tying two or four together, can make a pack which they can carry on their shoulders or back. This system is equally convenient for the replenishment of munitions and the supplies to the firing line in combat. At night, the lookout places the sack of grenades at his side, rolling up its edges. In the morning he places it in a niche, the danger of surprise having passed.

A few grenades will be thrown from time to time to determine their state of preservation.

*Property depots.*—As a rule there will be only one depot of material per company (near the company command post). But, to prevent waste, the commanders of platoons, or trenches, may form a small depot for the collection of intrenching tools and other trench material furnished them, and which are not in actual use.

A depot for a company should contain at least 500 grenades, placed in sand bags as explained above.

*Prevention of waste.*—All carelessness leading to waste must be suppressed severely, and the men must be made to comprehend that the sum of many individual negligences will attain a figure for which no system of production at the bases can compensate. Munitions left out in the rain deteriorate or are lost in the mud or in unnoticed holes. Bayonets and unserviceable rifles have been used by the supports, haversacks have been used as sand bags, etc. All surplus material, all scrap metal, fragments of leather, etc., should be collected by each section and sent to the company depot. Fatigue parties will be sent to all abandoned communicating trenches to bring in any property that may have been left there. Any man who, in the course of fatigue or special duty, finds tools, munitions, or abandoned property of any description, should carry the same

to his officers. Reserve rations should never be eaten without orders, or as a result of laziness. Waste in all of its forms must be severely repressed. It is a proof of indolence and indiscipline.

*Messing.*—At the prescribed hour, after observing the enemy's artillery, the usual fatigue party from each company will leave the trench under the command of the noncommissioned officer in charge (supply sergeant) assisted by a corporal. The responsible officer will send back by them such property as can not be used, the empty ammunition boxes, the arms of the killed and wounded, which they turn in to the supply officer. Food is distributed at the station of the rolling kitchen which accompanies the supply sergeant, who is left by the company with the supply train to draw rations and to attend to their careful preparation. After the food has been served out, the fatigue party returns in a formed body, headed by the corporal and followed by the sergeant in charge, who is required to bring up the rear. The sergeant in charge reports to the captain the return of the detail, and its dispersal to the several platoons. The platoon commander makes every effort to reheat the soup and coffee (using charcoal, faggots, etc). He inspects the mess kits, and should bear in mind that if, in spite of all difficulties, he succeeds in making the meals in the trenches agreeable, he is exercising a most salutary moral influence upon his men.

*Memorandum for the platoon commander.*—To be responsible for the safety of the trench, which he must hold at all costs. The rôle of his trench in the general defense.

Daily report for orders and instructions.

Observation; vigilance; lookouts.

Day and night duty: The selection of the sergeant of the guard; rounds; patrols.

Defensive and harassing fire.

Flank defenses of the trenches, both of the front and of the interior.

Condition of the loopholes, of the arms, and of ammunition. Hand grenades.

Accessory defenses; obstacles; movable obstacles, previously constructed, for blocking the communicating trenches.

Communications; rockets; signals.

Machine guns and adjacent grenade throwers.

Condition of the trench; maintenance of the communicating trenches; improvement of the trench and dugouts; designing and executing new works.

Property received; surplus property; waste.

Precautions against gas.

Calls to arms.

*Memorandum for the chief of the half-platoon.*—Assignment of the prescribed duties to the individual soldiers by name; roll calls.

Assembly and departure of the fatigue parties for supplies.

Assignment of the men to dugouts; arrangement of their property and the straw.

Police of the dugout and of the trench.

The regular removal of mud; drainage ditches; drain pits.

Burial of excrement; precautions against rats. (It is forbidden to throw away the least morsel of food, either in or out of the trench.)

Digging and police of latrines; daily disinfection by the litter bearers.

Signboards; telephone lines; maintenance of all classes of lines.

Wearing by the men of the prescribed uniform (for guard, for fatigue, or when off duty). Habitual carrying of rifles, helmets, gas masks, and portable intrenching tools.

Daily inspection of arms and ammunition.

Equipment; camp expedients; intrenching tools; reserve rations.

Reheating the food; equitable distribution of the same.

The sick; men excused from fatigue.

Pointing out to the men the command posts of the platoon commander and the captain, the battalion dressing station, etc. The regulation of the movement in the approach trenches.

In readiness to replace the platoon commander at any moment.

*Memorandum for the sergeant of the guard.*—Exact relation of his trench to the adjacent trenches; instructions for combat; marks for night firing.

Instruction of the men.

Taking charge of the apparatus for trench illumination; illumination of the front of the trench in the event of a suspicious noise.

Inspection of the condition of the loopholes.

Vigilant lookouts; keen and attentive ears; loaded rifles; megaphones for gas alarms.

Verification of the written and oral orders transmitted by the sentinels.

Knowledge of the hours of departure and return of the patrols and their itinerary; warning all of his men concerning their movements.

Reports to the officer of the guard of every incident and the arrival of any superior officer.

Turning over to his successor all of the written orders and the panoramic sketch of that part of the hostile line under observation. Sending the orders and sketch to the platoon commander for his information as often as may be necessary.

*Memorandum for the company supply sergeant.*—Taking over the list of the property turned over by the supply sergeant of the company which is being relieved, and verifying it, including the property which is in the section.

Signing the receipt to the captain, who then becomes responsible.

Taking charge of the depot of supplies, and making a record of all materials received, issued, or expended.

To be in readiness to fire signal rockets on the order of the captain.

To ascertain what supplies are needed, and to prepare requisitions for the same.

To identify the dead; to take charge of their personal effects; to prepare the inventories and have them signed by the captain, and to turn the inventories in to the designated officer; to leave the identification tags on each body; to cause the bodies to be buried by the litter bearers after tying around their necks bottles containing the means of identification.

To take in from the slightly wounded equipment, intrenching tools, extra ammunition, and other company property in their possession. They will be allowed to retain their rifles, accouterments, gas masks, and one day's reserve rations.

To take charge of the detail sent for food each day.

To turn in to the supply officer all unserviceable or surplus property received.

*Memorandum for the battalion sergeant major.*—To take charge of the property pertaining to the command post of the battalion commander.

To acquaint himself with all of the established methods of communication by telephones and visual signals.

To make the arrangements prescribed by the battalion commander for firing the signal rockets.

To familiarize himself with the periodical reports and returns and other official papers; to call for them from the companies from time to time; to require the companies to furnish duplicate lists of the property with which they are charged; to consolidate every morning the requisitions for supplies.

To coordinate the services of the agents of communication; to keep them posted as to the location of all the command posts and the available routes thereto (colonel, adjacent battalions, companies, battalion and regimental dressing stations, observation stations, and telephone stations of the artillery).

*Memorandum for the company commander.*—Responsibility for the defense of the strong point.

Plan of defense of the strong point; sketch map.

To send extracts to the platoon commanders.

The employment of specialists, grenade throwers, machine gunners, signalers.

To limit to the minimum the number of confidential documents kept in the trenches; to arrange for their destruction prior to an attack; to keep no surplus mess funds.

To keep the trenches in good condition; selection of the officer of the day.

To prescribe the inspections of the guard; to suggest patrols to the battalion commander.

To study the possible perfection of his plans for defense and counter attack, and the material welfare of the men in the trenches.

Selection of and strengthening the observation post.

To locate beside it the command post, the telephone, and the depots of ammunition, water, rations, and supplies.

To study all possible surprise attacks and the best employment of the artillery in the trenches.

Communication by telephone, visual signaling, or by other methods, with the battalion commander and the adjacent companies; communications with the platoons; guide boards to the several stations.

Personal relations with the special arms in the trenches, artillery, machine-gun units, engineers, etc.

Methods of calling for barrage fire or retaliatory fire; understanding concerning rocket signals.

Daily reports; observation of hostile artillery fire, origin, hour, caliber, direction of fall.

Requisitions for supplies.

## CHAPTER II.

### INFANTRY ATTACKED IN ITS TRENCHES.

The trenches may have to repel a surprise attack or an attack preceded by a violent bombardment. Either may be prepared by an emission of gas or by the fire of asphyxiating shells.

*Surprise attacks.*—Surprise attacks, either by night or day, have no hope of success unless the duties of the lookouts have been poorly performed, or the men have not been sufficiently exercised in responding to alarms, or the accessory or flanking defenses are insufficient. The enemy will then take advantage of the confusion to which even good troops are liable when they are too confident that nothing is going to happen.

The preventive is to keep the troops in the trenches always in the atmosphere of combat by causing them to actively wage a harrassing warfare. If the enemy is constantly annoyed and deprived of his rest he gets a clear idea of what is to be expected from intact trenches.

*Attacks after bombardments.*—The attack most often manifests itself in a bombardment of extraordinary violence, directed on all of the fronts and communications of the first line and even of the second. Before each assault a heavy concentration of fire is directed on the first objectives assigned to the infantry and a

barrage fire in rear of the objectives. Employment of the largest calibers on the first line trenches. At the end of some hours, or even of one, two, or three days, the enemy judges that the accessory defenses have been destroyed, the trenches leveled, and that the defenders left in the few dugouts that remain intact are completely demoralized. He then "lifts" his fire, at the same time maintaining the barrage, his infantry suddenly emerges from his trenches "*following the projectiles at a run,*" and assaults our line.

To defend his battered trench, deprived of a portion of its defenders, is an extremely hazardous task, the difficulties of which one must not be afraid to point out beforehand.

But from numerous examples of defenses that have been *victoriously conducted, in spite of the concentration of the most formidable resources*, it can be proven that it is possible for *brave defenders, though few in number, to man their ruined trenches and hurl back the enemy at the moment of assault.*

All that the most powerful artillery has ever been able to accomplish is to *diminish* the material resources and the morale of the defenders; it can not completely destroy them. The capacity for resistance which lives in warrior souls remains superior to material effects, no matter what they be. Every soldier should endure the bombardment with stoicism, and repeat to himself that if he escapes its perils, *he is certain*, with the assistance of his remaining comrades and the machine guns that are still serviceable, to mow down the hostile waves of assault *provided he occupies, in time, his post*, or the shell craters which have replaced it.

*The importance of lookouts.*—Everything depends on the vigilance of the sentinels. They must give the alarm the moment the assaulting lines leave their trenches and see to it that the egress of the men from the dugouts, rifles loaded and hand grenades ready for use, takes place before the enemy can reach our lines. It is a question of seconds, not of minutes.

Concerning this, the following rules:

1. *Each shelter should have a sentinel in its immediate vicinity who can be seen and heard from the door.*
2. *The post of the sentinel, which is constructed at the same time as the dugout, should be protected in the strongest possible manner.*



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3. *The sentinel*, who is kept constantly in view by a man of his relief, posted in the doorway of the dugout *should be relieved as often as is necessary*. (This post is dangerous, and all the men in the dugout should take their turn at it.)

In addition to the sentinel, a large periscope should be installed, if possible, and manipulated from the interior of the dugout. The periscope alone, however, would be insufficient. No confidence is to be placed on signals, bells, or any sort of wire device to reach from a sentinel some distance away.

These rules apply to dugouts and machine-gun emplacements, and all the more imperatively since the safety of the trenches rests mainly on its flanking defenses.

*Maintenance of communication, during bombardment, between the platoons of the firing line, the captain, and the battalion commander.*—The telephone can not be relied upon. Its wires are almost certain to be cut. Signaling with lamp apparatus is uncertain on account of the complete disorganization of the firing line and the thick cloud of dust that hangs over it. It may perhaps be established after the assault with lanterns which have been carefully kept under cover until that moment; but this method can not be depended upon to give warning of the attack.

The *courier*, or rather a *pair of couriers*, is the only means of communication that is almost certain. But it is an expensive method, and it is slow. It should be kept as a last resort in critical moments. The courier is the only method by which the hasty sketch can be sent, which clears up the situation, and the arrival of which is awaited with so much impatience by the commander of the echelon in rear.

*Rockets* constitute the best means of *instantaneous* communication. They should be placed beforehand in every dugout, but it is always difficult to make them function in the firing line, the imminence of the assault not allowing sufficient time for the purpose. At all events each sentinel should be supplied with two or three rockets calling for the barrage, a rocket firer should be installed alongside of his observation station, and he should be instructed to fire the rockets as soon as he sees the assaulting line emerge from the hostile trenches.

The best solution is to have the command post of the captain on the line of supports and that of the battalion commander on

the line of the reserve trenches supplied with *intrenched observation stations* carefully located, and from which the sentinels can see the launching of the assault as soon as the sentinels of the firing line do.

*Reinforcement of the firing line—Initiative of the supporting platoons.*—At the moment of the assault the captain can immediately throw in his supporting platoon, or platoons, to the assistance of the firing line, *a movement that must be studied and prescribed beforehand to the minutest detail*, but which would have been very dangerous of execution during the bombardment and before the enemy "lifted" his fire.

*The commander of the supporting platoon does not always wait for the captain's order before acting.*—If he learns from any other source than the captain that the first line is in danger, he reinforces as has been prescribed, it being assumed that communication with the captain is impossible at that critical moment.

The case also occurs sometimes that the captain's observation station sees nothing and it is the battalion commander who first detects the hostile wave. He will send one or two of his platoons, which have been prepared to advance for such a contingency, to reinforce the platoons that are sustaining the shock. These platoons will advance quickly to the firing line or will replace the company supports sent forward by the captain, if he has already thrown them in.

*Employment of barrage fire.*—It is not sufficient for the defenders of the first line to man the trenches and meet the first waves of the assault with rifle fire. The artillery must also be notified that the time has come to open a violent barrage fire behind the leading assailants. The object of this barrage fire is to isolate them, to prevent all reinforcement or replenishment of ammunition, and even deprive them of the possibility of retreat. Thus isolated, they are at our mercy, even though they have pierced the firing line and have penetrated into the support trenches. Such a success will involve them in one or more of the *compartments* of the position (figs. 274 and 275), where they will be subjected to frontal and flanking fire and be open to counter attacks.

All officers should explain to their men, not only theoretically, but by practical demonstration on the ground which they occupy,

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the principles of the barrage and of the division of the position into compartments. They must demonstrate to them that *they must never yield to the uncomfortable impression that is experienced when one feels that an enemy that has penetrated the*

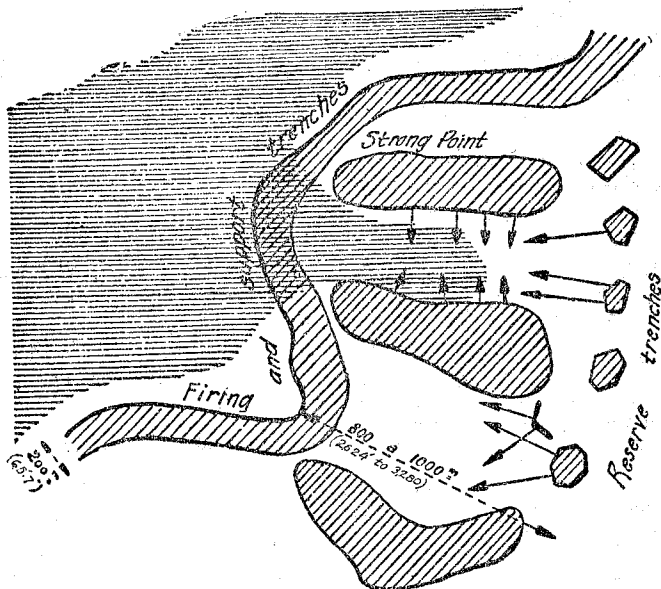


FIG. 274.

position to his right or left has gotten in rear of him, for he himself is also on the flank or in rear of the organizations that have effected penetration. Their local success has only drawn them into a "pocket of fire" which will certainly close upon them if our people do not yield to discouragement. The tenacity of a

few handfuls of men, even if surrounded in their intrenchments, will insure the victory.

Barrage fire is called for from any observation station having knowledge that the enemy is making an assault, by telephone, if it still exists; if not, then by rockets. *Rule: The successive lines should repeat the rockets sent up in front of them, and continue to do so until the barrage has been opened.*

In default of other information the captain and the battalion commander call for the barrage and throw in their reinforcements the moment they see that the enemy has "lifted" his artillery fire, and that rifle fire has been opened from the first line.

If the bombardment has been localized on one or two supporting points, the adjacent ones, which are able to do so, observe the assault, and, as their telephones are probably working, they will notify the artillery concerned. Such observations and lateral communications will be invaluable should direct methods fail.

*Carrier pigeons*, which have proven to be uninfluenced by the severest bombardments, may also be employed. As the pigeon will fly to the central loft, the message should state precisely what group of artillery must be called upon to immediately furnish the barrage, and on what portion of the front it is needed.

*Signals between searchlights on the ground and aeroplanes* are employed whenever practicable, in accordance with the rules and methods prescribed in Chapter IX, Part IV, "Methods of communication and signaling."

*Counter attacks.*—Counter attacks are attended with greater success and less loss the sooner they are launched. They should take the enemy by surprise, and before he has recovered his breath and regained formation. They should be made upon the initiative of the local commanders, as the transmission of orders and intelligence have become, by that time, most precarious. All hesitation or delay will be paid for dearly.

This is why the plan for the defense of a given "area of resistance" should foresee all rational possibilities of attack, and take precautions to designate under each hypothesis: The counter attack, or attacks, to be made; the fractions that will make it (section, platoon); the route each platoon will follow, and its final objective; the prearranged signal for launching the

counter attack. *But it is properly the enemy, himself, who gives the signal for the counter attack.*

Counter attacks should be like the two jaws of a trap, which close automatically the instant the trigger is touched.

*Direction of counter attacks.*—Counter attacks may be delivered toward the front. Such is the case of a platoon advancing to reinforce a platoon of the firing line, and finding the enemy already in the trenches.

The most successful counter attacks are those delivered simultaneously against both flanks of the hostile wave, and abreast of the first line of resistance. The advance is made with hand grenades along the trenches of the firing line, and those of the supports and reserves; and in the communicating trenches the enemy is attacked in rear, his retreat is cut off, and those that have penetrated the line are surrounded.

Thus to meet the supposititious case of a hostile penetration between C and D (fig. 275), one should provide for the following counter attack: Barrage in front of CD by group X; a column of one or two platoons emerging from the group of intrenchments G, and attacking in the direction from north to south; a similar column advancing from supporting point H, to attack in the direction from south to north. Details of execution are laid down in advance by the commander of the strong point.

*Reconstruction of destroyed trenches.*—After a hostile attack has failed, *it must be remembered that another attempt will probably follow in a short time.* Work upon the destroyed parapet must be begun immediately. Sand bags and trench shields permit of hasty provisional reconstruction.

*Menace of mines.*—Wherever the presence of a hostile mine chamber is suspected (sounds heard for a considerable period, and then suddenly ceasing) plans must be made to occupy the crater before the enemy does. When, in the judgment of the engineer officers, the gallery has reached a point below M (fig. 276), and the mean diameter of craters in that region is from 35 to 45 yards, two trenches are established, AB and BC, 10 to 15 yards outside of the probable perimeter of the crater. The menaced trench is abandoned, and preparations are made to rush from AB and BC to the nearest edge of the crater.

From there the enemy is prevented from occupying the crater. It is dangerous to actually occupy the crater, since the enemy

often has a second mine ready, or can easily prepare one shortly with his undestroyed galleries, even though those under the crater are destroyed. It is well also to place a couple of machine guns to fire at PE along the edge of the crater and trench mortars to cover the interior of the crater with curved fire.

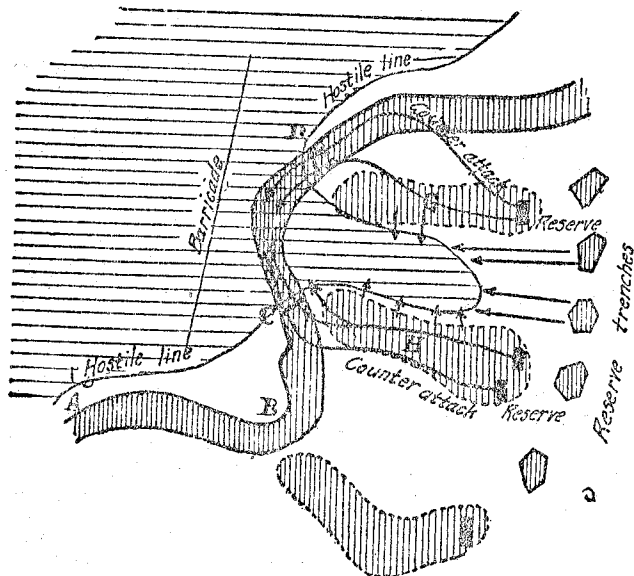


FIG. 275.—Routes of counter attacks.

*Fatigue details surprised by an attack.*—Isolated soldiers and working details, or fatigue details employed in the service of supply, which are surprised by an attack at a distance from the units to which they belong, automatically place themselves under the command of the chief of the nearest unit. He either

incorporates them in his own unit or sends them to their own commands, with a written order and under charge of a non-commissioned officer.

*Fractions surprised in their shelters.*—Dugouts permit an intense bombardment to be endured, but have the inconvenience that they retard the egress of the garrison. It must be remembered that the enemy may possibly be encountered at the door-

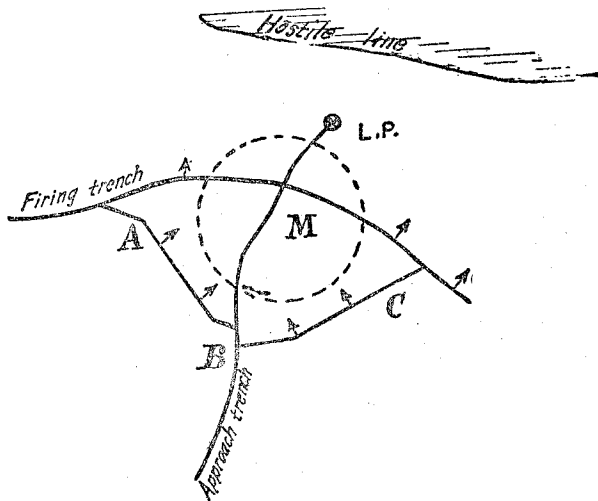


FIG. 276.

ways at the moment the men start to occupy the parapets. In each dugout there should be a small stock of hand grenades, by the use of which space may be opened about the entrances, and the garrison can debouch in force. Every man should determine not to permit himself to be killed or asphyxiated by the intruders,

nor to be frightened by those of the enemy that have already crossed the trench, as there are others that will take care of them, but to exterminate those that are in the trench and man the parapet and open fire on the second and third hostile waves. To insure egress from the cave shelters a traverse blockhouse

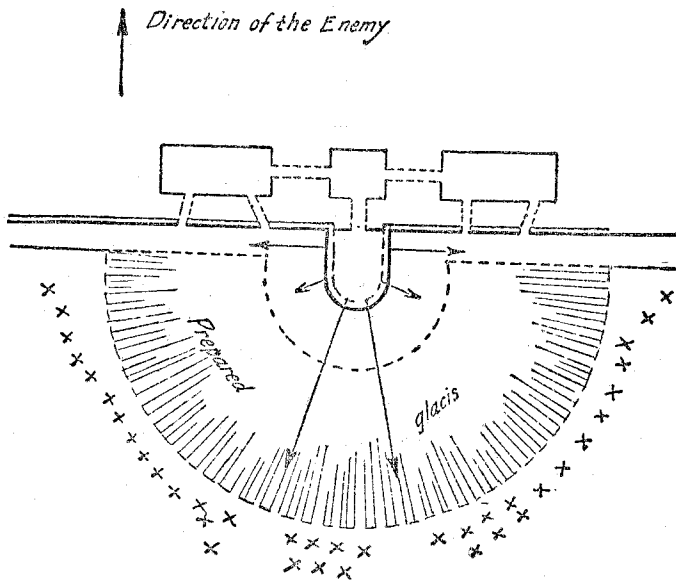


FIG. 277.

should be constructed of reinforced concrete according to the plan shown in figure 277. This forms a sort of caponier, communicating with the dugouts, and which has their entrances under its fire. The ground to the rear should be sloped, and the accessory defenses should offer exits to the enemy who have entered the trench, in using which they will inevitably be shot.



*Tenacity of the defenders.*—The defenders should, above all things, determine to fight to a finish, and not to give up the struggle because it appears that their neighbors are getting the worst of it, for besides these neighbors there are others who are holding on, and who will come to their rescue. A fight must never be judged by what is seen in the immediate vicinity; one must have confidence in one's battalion and regiment.

*Not an inch of ground should be voluntarily yielded, no matter what the circumstances. A body of troops, even though surrounded, should resist to the last man, without falling back. The sacrifice of every one of them may be the price of victory.*

## PART VIII.

### THE INFANTRY ATTACK OF A POSITION.

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#### CHAPTER I.

#### CHARACTERISTICS OF THE INFANTRY COMBAT.

Whether infantry fights in an offensive against lines which have been strengthened by the enemy for a considerable time, in each of the local combats of a general engagement, or in the *rencontre* of open warfare, its action always takes the form of the "attack of a position." The artillery *devastates*; the infantry *overwhelms*.

The principal effort of infantry is the assault. All of infantry tactics is comprised in the preparation for the assault, the execution of the assault, the exploitation of its success.

These operations are repeated successively several times in the course of the same combat; they can be analyzed so as to show that they are made up of a few very simple movements, which should become for each infantryman a mere matter of instinct.

#### I. PREPARATION FOR THE ASSAULT.

The preparation comprises—

1. The approach to the point from which the assault is to be launched against the hostile position.

2. The organization of the line of departure of the assault.

*The approach.*—The approach consists in advancing a well-organized line of attack into contact with the enemy *and exactly opposite the objective*.

In the present case this approach has taken place many long months ago. If it has not already been accomplished, it is

sufficient to construct the parallel, which constitutes the line of departure for the assault at assaulting distance.

Good *assaulting distance* results from a consideration of the following points: It should not be more than 400 to 500 yards, in such a manner as to save our troops and their reinforcements as much as possible from the enemy's artillery barrage. It should not be less than 150 yards, as otherwise the bombardment by our artillery, on the hostile first line, will fall upon our own men. This requirement and *that of being directly opposite the objectives decided upon* may make it necessary to rectify the front and to open one or several parallels in advance of our own first line, and this is particularly true if the latter is too far from the hostile first line. The most advantageous location for the trench of departure for the assault is about 200 yards from the hostile first line.

As a rule, such works as these and the gaining of ground to the front should be avoided as much as possible, as they give the enemy warning of our offensive plans. It is worth a good deal more, usually, to get the benefits of surprise, even though the assault must start at a greater distance from the hostile line.

In the course of the combats which follow the assault, the approach may be pushed to the second hostile position, or perhaps even to another position in rear. The approach, likewise, will be one of the constant problems of a warfare of movement.

The march in the approach will be executed in thin lines, or in lines of small columns, advancing by successive rushes, rapidly, and in good order, *under the protection of the "accompanying batteries" and of the "counter batteries."*

The combination to be brought into play is to have the infantry march as though behind a shield, on the very heels of the bursting shells of a well-regulated artillery fire, arrive in good order at the assaulting distance, deliver the assault without having to fire a shot, and thus continue until the last assigned objective has been reached and taken. Things work out well in trench warfare when one has so disposed his time and necessary material as to severely crush all hostile organizations before the attack. In open warfare such complete preparation is not to be expected.

Theoretically, the object to be attained by the infantry is to reach assaulting distance in good order, under the protection of the artillery, without having opened fire.

But more often, as soon as the enemy is approached, and in direct proportion to his proximity, the advance becomes slower and more painful. A simultaneous advance gives place to successive rushes by groups (platoon, half platoon). Sometimes the firing line is carried forward by skirmishers, taking advantage of any cover that exists, and advancing individually.

With well seasoned infantry, fire is not opened until short range is reached, where the skirmisher can see his objective and take aim.

The officers and noncommissioned officers are the soul of the advance. By their determination and their military training they overcome the tendency to inertia and disinclination to leave cover. It is they who, by their influence on the groups of men that immediately surround them, keep alive the tendency to go forward.

*The organization of the zone of departure for the assault.*—The zone of departure for the assault is formed by lines of trenches called *parallels of departure*. They should be close enough together so that the one which is most distant from the enemy shall satisfy the condition given above that it will not be in the hostile barrage fire, delivered to prevent supports and reserves being brought up by us. There should be enough of them to shelter all of the troops that are to make the assault. It is even advantageous sometimes to put the battalions of the second line, as well as the assaulting troops, in the parallels of departure, from the very beginning. It has been established that, in the course of the preparation for the attack by the artillery of our own side, the hostile artillery replies but little. It is therefore not necessary to construct bombproofs for all of the effectives in the zone of departure, nor to dig communicating trenches too far to the rear. Nevertheless, it is necessary to have recourse, to a great degree, to "camouflage," from the very commencement of work on the parallels of departure.

The arrangement of the terrain for the attack comprises then generally the following:

The construction of observing stations; command posts; trench-artillery platforms; light shelters for ammunition, food, and material in the first line.

The organization of the communications, trails and paths, and approach trenches both for bringing things forward and for evacuating the trenches.

The organization of means of information (telephones with wires buried, visual signaling, messengers).

The organization of the necessary parallels to shelter (lodge) the troops the day of the assault or the evening preceding the assault.

In open warfare, the parallel of departure is improvised by the men of the first line. When they have been unable to approach during the day to within assaulting distance, the line of departure for the assault is carried forward, as soon as night falls, to the site selected for it, conforming as closely as possible to the rules which govern attacks organized at leisure. The reserves are in the rallying points organized as has been explained in Chapter VI, Part IV (fine print).

## II. THE ASSAULT.

The intense effort demanded of the assaulting troops, and the successive attacks which they must make, necessitate a deep formation. The several echelons thus constituted have been given the name of "*waves*." But this term does not signify a uniform formation. The foremost waves, generally the first and the second, advance in line; those following are in various formations, for example, in lines of small columns. Moreover, to facilitate the leading of the echelons, the waves are formed by the simultaneous advance of tactical units not deployed in single line but themselves extended in the direction of depth, from which it results that a company or battalion will form a part of several successive waves.

Formation for the assault does not consist of the deployment of rigid lines capable only of a movement straight to the front, but, on the contrary, of *placing side by side tactical units which are capable of being led and even maneuvered.*

The waves are crowded into the first-line trench and the parallels in its immediate rear, sometimes in double rank. They dash forward, following each other at short distances, so as to rapidly cross the zone of hostile barrage fire. Theoretically an assaulting battalion leaves a single block of its parallels of departure and then while marching takes the distances prescribed between waves.

*In no event should these waves close up automatically on the leading wave, as its only effect would be in thickening the skirmish line, increasing the losses, and mixing the units. To avoid such effects, when the first wave has crossed the advanced hostile trench it continues its advance toward the objective assigned it. The other waves follow in good order. They engage successively according to the necessities of the situation under orders from the commanders of the several units.*

### III. COMBAT WITHIN THE HOSTILE POSITION—EXPLOITING SUCCESS.

*(a) The assault is followed by a combat in the interior of the position. At certain points the enemy yields, at others he resists stubbornly. The assailants, rallying about the officers that remain, rush into the openings and surround the nuclei of resistance. As soon as the trench is carried the attack pauses only long enough to re-form, and the groups of assailants then dash into every opening that offers. Their audacity will constitute their strength.*

These scattered combats will bring the assailants in contact with a new line of defense. If it is occupied, they dig themselves in, in order to form a line of departure for an assault by the reinforcements. The attack of the new position will be conducted in the same manner as the preceding, but with fresh troops.

The operation of having the line of reserve battalions cross the line of battalions which have just delivered the assault is called *the passing of lines* and the reserve battalions then become the first line. The new attack is made against a line of intermediate objectives, if it is estimated that the final objective is too far away to admit of these same reserve battalions carrying it through to the bitter end; or it is made (imme-

diately after the first attack) against the line of objectives which were last assigned, which is then crossed by the troops *previously detailed for the tactical exploitation of success.* Very detailed instructions are laid down for this in the *plan of the engagement* or in the *plan of exploiting a success.*

This is a simple operation with well disciplined troops. It must be put into effect promptly, because upon the line where the passage of lines takes place the density of the troops is momentarily doubled, thus adding greatly to their vulnerability. The battalions which have been passed become part of the reserve or are left to guard the captured position. If the attack has for its only aim the taking of a certain definite position, the firing line occupies the position and digs itself in, pushing to the front only some advance elements (patrols). The reserves move up near at hand, in order to insure the occupation of the conquered terrain.

*Attacks will generally have as an aim the carrying of the hostile artillery line,* in order to disorganize the defense by capturing the enemy's guns. The plan of the engagement indicates to each one, in unmistakable terms, the objective that it is desired to reach. *That is the minimum line which must be reached, but beyond which the troops may and should progress.*

The *plan for tactical exploitation of success,* after the advance has come to a halt, indicates what is to be done as soon as the attack has been successful. It applies principally to the troops which follow in rear for this very purpose.

*Without waiting for them,* the troops which have carried on the *combat within the hostile position,* having reached the last objective which has been assigned to them, must *push forward at once* contact patrols, charged with reconnoitering the new hostile position. If the results of this reconnoissance and a personal estimation of the situation by the commanders of the units show that the occasion is favorable, these commanders themselves (captains, etc.) must take it as a strict duty *to exploit the success obtained by appropriate action.*

They report at once to their commanding officers if they consider that the exploitation of the success requires the putting in of fresh troops. Should the reconnoissances reveal the fact that the attack should limit itself to making secure the objectives carried, the units which have made the assault begin at

once the consolidation of the captured terrain. *The best way to get things under control is to put working parties systematically at the task of fortifying a judiciously rectified marked-out trace.* Avoid if possible having the new trench made up by joining together a lot of separate elements begun during the ups and downs of the struggle in accordance with individual ideas. Signal without delay to the artillery observers so that they can bring their fire to bear upon the new position to be attacked.

Sometimes the attack, deprived during the struggle of most of its officers, and harassed by converging counter attacks, has a tendency to break and retire. *This must not be. Ground taken must be held.* The groups find a footing upon and entrench points on the terrain where they are able to resist all attack. Surrounded, they resist till they are completely exhausted. It must not be forgotten, moreover, that the first waves (lines) are followed by a line of machine guns and supported by reserves.

NOTE I.—It is expedient to explain, by an example, what has just been said about the assault and the struggle in the interior of the position. Figure 278 represents the assaulting troops which have attacked in waves  $V_1$ ,  $V_2$ ,  $V_3$ ,  $V_4$ , and have found, beyond the first line of resistance, TT, different degrees of resistance ( $V_1$  represents a line of assaulting platoons which might be disposed in two lines or waves separated by some 20 paces). In front of C, breach is made. The forces C cross the zone of hostile barrage and attack the intermediate line, which there will be a chance to carry in the first rush.

If the resistance in the trenches T T, and the barrage, have caused  $V_1$  and  $V_2$  to slacken their pace, and as a result the waves in rear have closed up too much, the latter must increase their distance to avoid mixing of units and to constantly retain the power of maneuver. This accordionlike movement can be employed equally as well by  $V_3$  and  $V_4$ , whether deployed in line or in line of small columns.

Group B encounters on its left flank a strong point, N, which has not yielded. The reinforcing waves  $V_3$  and  $V_4$  maneuver to face the obstacle and begin to surround it in order that the advance in the free interval may proceed. The new direction



which is given to the elements of  $V_3$  and  $V_4$ , their *maneuver*, is here facilitated by their formation of line of small columns.

For D the same formation is required in order that the four waves may maneuver, by creeping and *crawling* to the right, and *attack* the strong point  $N_1$ , which is tenaciously held on that flank and delivers a flanking fire across the interval that must be suppressed.

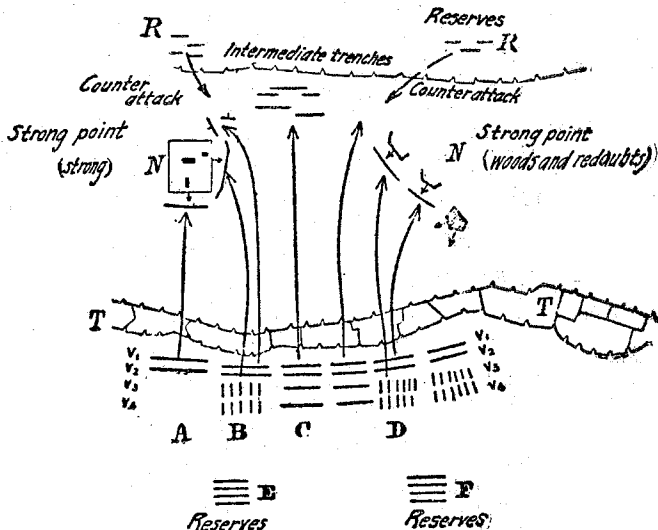


FIG. 278.

Before A, the fighting line brings up suddenly against N. In this case the reinforcement will often produce no result except to increase the losses. It is by surrounding the obstacle and attacking it in reverse that the same can be taken. This explains why the density of the attack, of infantry at least, will be generally greater in front of intervals than in front of the strongly fortified points N and  $N_1$ .

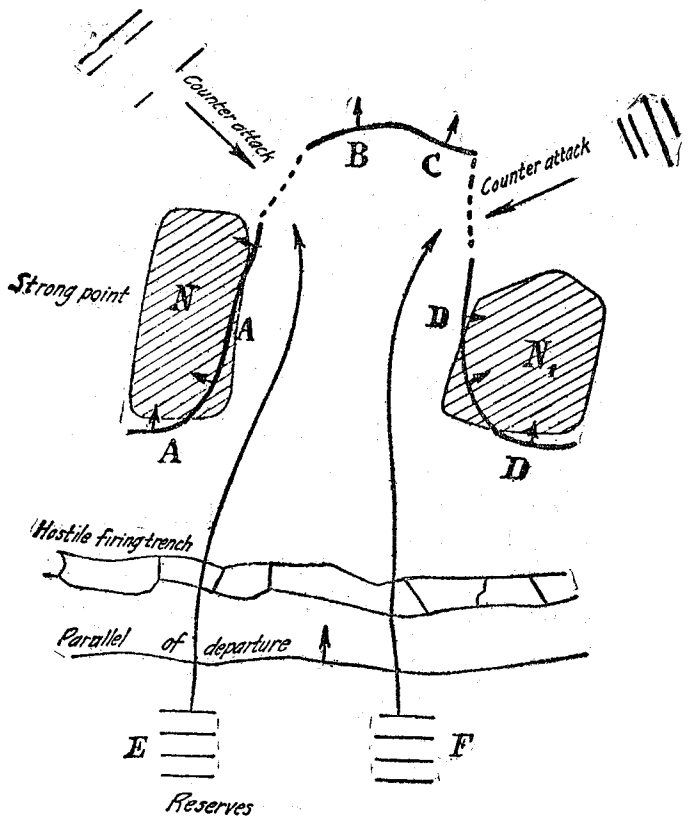


FIG. 279.

NOTE II.—There is another reason why strong reserves, E and F, ready to engage in the interval are necessary. It is the isolation of the units B and C, due to their rapid advance, while the adjacent units have to attack the borders of the strong point N and N<sub>1</sub>. (Fig. 279.) If the enemy has hidden some reserves behind these strong points, which is likely, his counter attacks against these gaps will be dangerous. These counter attacks must be prevented by pushing forward reserves by the approach trenches already captured, and attacking N and N<sub>1</sub> in their most vulnerable point, i. e., the rear.

(b) *Continuation of the struggle during the night.*—The night which follows a day of attack generally occasions a delay which the enemy will improve by digging himself in and hastily bringing up reserves. It is to the assailant's interest to use the night to follow up his advantages, to advance methodically at every point yielded by the enemy, and to seek to carry his new intrenchments before they can be consolidated. A night attack will have no hope of success except by troops already in contact with intrenchments that are partially destroyed, that are intrinsically weak, or still occupied by demoralized troops.

When it is a case of intact and well-constructed trenches, defended by unshaken troops, the attack must be invariably preceded by an efficient artillery preparation. In such a case the night is profitably employed in speeding up the concentration of ammunition and trench material, and even beginning the preparation for the attack with the aid of trench weapons.

By reason of the difficulties of an advance by night over unknown ground, night attacks should never have a distant objective. They will be limited to the carrying of a well-defined point or a well-defined line of trench. An exact knowledge of the ground being indispensable an attack of this nature, to be made by troops which have arrived on the ground after dark and without opportunity to make the necessary reconnaissances, is not to be thought of.

Night attacks are jobs for colonels and battalion commanders, for, because of the difficulties of communication and the mixing of units, the influence of brigade and division commanders can hardly make itself felt.

First and foremost, the troops that have made the day attack must be reorganized. This is the duty of all officers who move

along the front making the necessary dispositions and lending the encouragement of their presence.

In preparing for a night attack the concentration of the necessary materials and the distribution of the troops are made in accordance with the usual rules. When the preparation is complete, the line of infantry charges with the bayonet and without firing. When a trench is taken it is immediately reversed, rockets and illuminating flares are set off to permit reconnaissance of the ground in front, and very particular attention is given to the flanks. It must be thoroughly understood that a strong garrison must be left in the trench of departure and that the same must be linked with the captured trench by approach trenches as speedily as possible. Good order and silence are indispensable to the success of every night operation. Unless all of the above conditions for insuring success can be arranged for it will be better to refrain from making an attack.

#### IV. NOTES ON THE RÔLE OF THE ARTILLERY ON THE OFFENSIVE.

It has three rôles: (a) the artillery of the counter batteries; (b) the artillery for the destruction of the enemy's organized defenses; (c) the artillery to accompany the attacking infantry.

(a) *The artillery of the counter batteries.*—The object to be accomplished by this artillery is the *destruction* of the hostile batteries, and, meantime, to be ready to *neutralize* them effectively at any moment during the period when that destruction is being carried into effect. It reduces to a minimum the hostile barrage and counter-preparation artillery fire, by harassing both the batteries, whose locations are already known, and also those whose positions may become revealed during the development of the action.

(b) *The artillery for the destruction of the enemy's organized defenses* has for its aim:

1. To break down the obstacles; make breaches in the wire entanglements, etc.
  2. To destroy the principal defense constructions of the enemy, such as points of support, command posts, observing stations, bombproofs, rallying points, etc.
  3. To demoralize the surviving defending troops.
- (c) *The aim of the accompanying batteries is:*

1. To furnish *direct support* to each assaulting body. It is the shield behind which the infantry will march. It prevents the defending force of the enemy, in the zone being attacked, from lining their parapets with men and installing their machine guns. A cooperation to the minutest detail must be established between the advance of the artillery barrage and the advance of the infantry. The latter *must follow the shells, and advance under the protection of its own artillery fire.*

2. To accomplish the complete covering of the attacking forces, which means that they must cover them not only in front, but also that they must protect them from hostile interventions of every sort, which might be inaugurated in the hostile zones not being attacked. They must likewise prevent the approach of reinforcements from near at hand or a distance and must bring under rapid fire hostile troops trying to rally, or counter attacks as they are unmasked or discovered. They will also prevent the bringing up of reserves, reliefs, material, and ammunition.

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## CHAPTER II.

### COMBAT OF THE PLATOON AND SQUAD.

The formations and organization of the platoon, *its advance to the combat and to the assault*, have been set forth under Part II, Chapter V.

The *fire action of the platoon* has been made the subject matter of Part III, Chapter V, of which only the beginning concerns the assault.

The mission of the nonindependent platoon is always very simple and energetic.

*Comparison of a line of skirmishers and a line of squad columns.*—Skirmishers in line have the sense of comfort that comes from companionship. They can see each other, and they go forward together, at the same pace, to face the same risks. If deployed at intervals of several paces, the individual skirmisher can see better where to put his feet in advancing, and where to take cover on halting. The line of skirmishers, at the widest possible intervals, is the most appropriate formation for

crossing a beaten zone at a walk. With intervals of four or five paces it is the formation for firing and for delivering the assault. Its disadvantage is that it constitutes a target that is visible at considerable distances, and that is the reason why, when troops are under the fire of artillery only, it is forbidden as an approach formation.

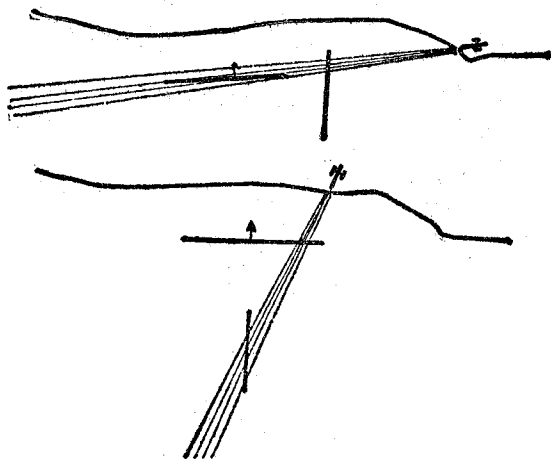


FIG. 280.

From the standpoint of *vulnerability* to infantry fire, it is impossible to assert that, *at short ranges*, one of the two formations is more dangerous than the other. All depends on the location of the hostile machine guns, and the proportion of frontal and flanking fire developed. The sheaf of machine-gun fire is very dense, but very narrow. If the guns are located to a flank they will give greater execution on a line than on a column; if to the front, the converse will be the case. (Fig. 280.)

This explains why, in the case of waves following each other at short distances, the leading waves may be in line and those in rear in small columns.

Small columns have more elasticity than lines. The latter, when launched, can only move straight to the front. The small column is easy to command and to divert to any direction, and therefore remains capable of *maneuvering*, even in the midst of an assault.

Small columns of files or twos are used. (1) In the formation for the approach, under artillery fire. Their employment is obligatory in all classes of terrain. (2) In the formation for combat, under infantry fire, but only if the country is close and difficult to traverse. (3) In the formation for the assault, by the supporting waves in which it is desirable to retain the ability to maneuver.

The great disadvantage of this formation is the tendency the men have to "bunch," especially at the moment of the assault. Supervision by many especially reliable noncommissioned officers is essential. When a supporting wave is to advance in line of squad columns of files, it must leave the trench in line, in the same manner as the leading waves, and then form line of columns. If the men leave the trench one at a time and all at the same place, they will take too great distances and will lose all cohesion.

To resume: Under artillery fire, small columns are essential; under infantry fire the choice between the two formations will be more of a question of good order than of vulnerability.

*Rôles and objectives which may be given to platoons.*—It should be the object of the dispositions adopted to *paralyze instantly the defense in all of its elements*.—Every German should find a Frenchman in front of him unexpectedly, and before he can collect himself for defense. The platoon may fight as an *assaulting unit* or as a *reinforcing unit*.

*The platoon as a unit of assault.*—To paralyze the defense it is necessary to seize immediately all of the important points, which are: the dug-outs (the dug-outs under the parapet, dug-outs further to the rear in the communicating trenches); the trench intersections; the machine-gun emplacements; the command stations, or posts.

Aerial photographs will permit a series of these important points to be assigned to a section as successive objectives.

Each noncommissioned officer receives a sketch (made with colored pencils) upon which the objectives assigned to him will be clearly indicated. Each platoon must march straight on its objective; it must not diverge; it must not permit itself to be diverted. Unless they have been assigned as final objectives, *the trenches must not be entered*. They must be attacked from the surface of the ground. When an intermediate trench has been carried, the platoon re-forms a few yards beyond the parados and advances to the next objective. The principal lines on which the successive rallies are to be made will be indicated in advance by the captain from the plan of the hostile trenches. In any case the section should rally automatically at each halt.

*The supporting platoon.*—The platoons of the second wave (company supports) reinforce the platoons of the first wave, if these have suffered serious losses. If not, they strive, in the course of the fight and after the rallies, to move toward the flanks of the company to fill in any gaps that have been caused in the line. If a platoon of the first wave encounters a resistance, the supporting platoon takes care not to move directly against the same resistance. It must seek to outflank it and take it in reverse.

The fight in which the two leading waves are engaged should be rapid and should be limited to putting out of action those defenders who are in evidence and whom it would not be safe to leave in their rear. The remainder is attended to by the trench cleaners.

#### FORMATIONS TO TAKE.

1. *When the platoon is an assaulting unit.*—The first line of the platoons, which is generally called a "wave" is usually composed of the first half platoon (grenadiers and fusiliers). The *grenadiers* are intended for action against the enemy ensconced in his earthworks or in shell holes. The automatic riflemen have the task of firing upon any of the defending forces who show themselves, or who are retreating, or who are forming for a counter attack.



*The second line of the platoon (second wave)* consists of the second half platoon. *The grenadiers of this half* (using rifle grenades, V. B.) have the mission, with their plunging fire, of making a barrage in advance of the front occupied, or in rear of the hostile front being attacked, or against hostile forces ensconced in the trenches but too far away to justify the use of hand grenades against them. The riflemen march well to the front and take a hand in the bayonet combats that have been inaugurated by their comrades of the first wave. The platoon commander marches with the second wave between his two squads of riflemen. The distance between the two waves varies from 10 to 15 paces. Under some circumstances it is permissible to send the riflemen in the first wave, particularly when the front assigned to the platoon is above the normal. It is recommended in the latter case to employ them by squad in such a way as to support the squad armed with the automatic rifles.

2. *When the platoon is a reinforcing unit.*—The platoon, if its effectives are sufficient to admit of it, takes a formation in two lines, the same as the assaulting platoon. The platoon commander marches in front with the line of specialist squads, in order to be able to *direct* his platoon by the developments of the combat as brought out by the assaulting platoon which has just preceded it. He deploys his squads, or has them march in column of files, in order to have them a greater time under control. When the support platoon has been diminished by one or two squads of specialists, as is provided for further on, its chief may arrange it in a single wave.

*Combat of the platoons in the approach trenches.*—Combat upon ground cut up by trenches often leads to an advance by groups of skirmishers along the approach trenches instead of an advance on the surface of the ground. Fighting in the approach trenches is step-by-step fighting and is extremely slow, as only one man can be engaged in front at a time and the enemy step by step. The weapon for this kind of combat is the hand grenade, and the "School of the grenade" (Pt. II, Chap. IV) and the tactical employment of the grenade (Pt. IV, Chap. IV) contain all the necessary instructions.

*Uniform and equipment for the assault.*—The following is an indication or memorandum:

*Dress:* Service uniform without the pack.

*Equipment:* Shelter tent diagonally across the shoulder in a roll; foot cloths rolled in the tent; intrenching tool hanging from the belt, sometimes two (see table, Pt. III, Chap. VII); provision haversack, with rations for the day and reserve rations; grenade haversack, containing grenades, fuses, etc.; canteen; supplementary water bottle or canteen for brandy, 1 liter; empty sandbags, two to five, attached to the tent roll; cup and spoon in the provision haversack; first-aid packet in the pocket of the greatcoat; soldiers' handbook in the pocket of the greatcoat; gas mask, hung from the belt, in front of the stomach, so that it can be easily reached with the hand. A second mask is taken if practicable; two identification tags, one around the neck and one attached to the wrist; piece of cloth, one side white, other red, for marking the position of the firing line to friendly aviators engaged in artillery observation. At night special lights (called Bengal) are used for indicating same. Rations for the day and reserve rations. Ammunition, 120 cartridges per man; 3 hand grenades, and 2 rifle grenades.

Another combination is to take the shelter tent, the provision haversack, and the foot cloths. If very rainy the foot cloths are useless.

### CHAPTER III.

#### THE COMPANY IN COMBAT.

EFFICIENCY OF NEW WAR APPLIANCES IN USE IN THE COMPANY.

The maximum efficiency of the company will not be attained, especially on the offensive, unless the following three basic conditions obtain:

The war appliances of new types must be *coordinated in their use.*

There must be adequate arrangements for their *ammunition supply.*

The men who make use of them must be *thoroughly instructed* in their use.

*The combination* of the automatic or machine rifles, the 1.5-inch rapid-fire gun, the rifle grenades permit our infantry to force the enemy to hug his trenches, while our grenadiers (bombers) and riflemen throw themselves upon him and close with him in the hand to hand struggle.

The arms of flat trajectory, the machine gun, the machine rifle, and the 1.5-inch gun, fire upon everything that raises itself above the surface of the ground. The weapons of curved trajectory—the rifle grenades and the hand grenades—attack everything which is sheltered by the trenches. The riflemen complete and take advantage of the results obtained by these specialists.

*The ammunition service* must be perfectly organized in order that these war appliances shall have all the ammunition necessary to function properly. It must be remembered that the heavier and more cumbersome that these appliances are, just so much more difficult is the replenishment of their ammunition.

*Instruction* is much more necessary with the new armament than it was with that formerly used. The weapons of great efficiency are of value only when handled by *disciplined, instructed, courageous* soldiers, directed by leaders knowing perfectly how to employ them. We must eliminate absolutely from the mind the idea that the specialists form a separate body, having in ordinary life, and in combat, obligations different from those of their comrades. Machine gun, personnel, grenadiers, automatic riflemen all live and fight in the ranks, in an intimate coordination with the rifleman proper. They are specialized only in their instruction.

The present company, furnished with all of its appliances and supported by a number of machine guns corresponding to its effective strength, is capable, through a proper coordination of its fire, of obtaining an efficiency far greater than that which could have been achieved by this unit at the beginning of the campaign. The difference is quite perceptible at the mid-ranges, but becomes absolutely startling at ranges of less than 200 yards.

On the defensive the company possessing all of these war appliances can hang on to the ground more firmly while waiting for *the appearance of the friendly artillery barrage*. This

quality is particularly favorable to the infantryman, because after the taking of an objective there is often a considerable period when, through lack of exact information as to the situation, his own artillery can not cover him.

On the offensive the infantry has recovered a strength and a faculty for maneuvering which it had to a great extent lost since the appearance of trench warfare. When friendly artillery has made a breach in the line of hostile defenses the infantry can throw itself through the same and break, *by the means in its own possession*, all local resistance and counter attacks.

#### FORMATION FOR THE ADVANCE—THE ADVANCE.

1. *Formation for the advance.*—The formation *most used* is the *double column*, with variable distances and intervals. The platoons in line of squad columns (squads in column of files); or of half platoons either in column of files or twos. The company may likewise employ line of half platoons, either in column of files or in column of twos.

2. *The advance.*—(a) *In open warfare.*—As soon as the company leaves the route column it takes the *formation of approach*. As soon as the hostile artillery fire becomes effective, and in any case, upon arrival in the zone of infantry fire, it takes the *formation for combat*. However, in difficult or covered terrain the formation in small columns may be maintained until a point nearer to the hostile infantry is reached. Lines of terrain particularly conspicuous, such as roads, borders of woods or fields, etc., are crossed with a rush, one company at a time. In this case the rear units close up on the leading units, which stop. The distances are then resumed as the advance continues.

The captain exerts himself to push the firing line as near to the enemy as possible. He pays very great attention to the maintenance of order in the reinforcing platoons and profits by every opportunity to keep them in control. He engages them (reinforces the firing line) as soon as he judges that their support is necessary to continue the forward movement.

When an effective hostile fire makes it impracticable for him to freely change his position in order to direct the movements of

the company he endeavors to place himself with the group most favored by the terrain and to push it forward. He thus influences the further advance of the company which he still commands, if by signals only.

(b) *In trench warfare.*—The advance and the forming for attack take place under cover in the defiladed or sunken approaches, which have been previously prepared, and in the parallel of departure. That which follows, refers to an attack prearranged in every detail, to be started from a system of trenches occupied for some time, for the purpose of attacking an enemy himself strongly fortified. In open warfare the principles would be the same, but the application would be modified by the fact that the two adversaries would occupy only improvised lines; with few, if any, communications in the sense of depth.

#### PROCEDURE DURING COMBAT AND ASSAULT.

The front of combat assigned to a company (200 men) is in the neighborhood of 200 yards and may even amount to as much as 330 yards. In the usual case the company may appropriately place two platoons on the combat front side by side. It may put three there and, in exceptional cases, four. The platoons which do not form part of the assaulting line are called *supporting platoons*. The *assaulting platoons* form the first two waves or lines of the company and are called *the assaulting waves*. They follow the principles, in the advance, laid down above for the platoon. Immediately behind the assaulting waves, at a distance of from 10 to 20 paces from the second wave, come the *trench-cleaners*, forming what is called the *cleaning wave*, or third wave, for a description of which see below. The remaining elements of the company, one or two platoons, diminished if advisable by the trench-cleaners, form, according to the strength of the company, one or two waves called *supporting* or *maneuvering* waves.

The captain marches in front of the leading one of these last two waves. The supporting waves are separated from the cleaning wave by a distance of about 40 to 50 paces. (See figs. 277a and 277b; and for the conventional signs, see fig. 17.)

PLAN OF COMBAT.

The success of an attack depends upon the perfection of its execution. This perfection must be assured by the *plan of combat* of the chief of the unit. This plan is based upon:

The mission assigned to the unit.

The obstacles to be overcome in accomplishing this mission.

The means at the disposal of the unit.

The company's mission and the supplementary means placed at its disposal are given in the order of the chief of the battalion. At the present time the obstacles to be overcome are known almost to the minutest details, thanks to the excellence of the

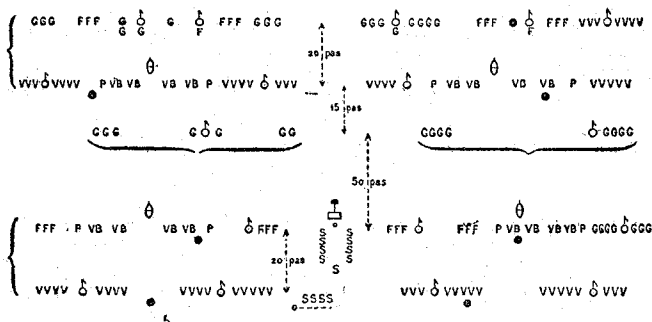


FIG. 277b.

methods of investigation and information placed by the General Staff at the disposal of the troops, published in information bulletins concerning hostile organization, and given by the daily aerial photographs, large-scale guide maps, sketches, and various information. This information must be classified by the colonels and useful extracts and reproductions carefully distributed by them, even to the companies themselves. The captains have

their subordinates, even to the noncommissioned officers, make the necessary copies and indicate accurately with colored pencil the line of advance and the successive objectives of their units.

The captain, in his order for the attack, makes all plain; the major must examine and approve it without unnecessary red tape.

The plan for the combat fixes—

1. The mission of the battalion, the missions of the companies, and the missions of the detached companies.

2. The number of assaulting platoons, the position from which each is to set out, and the particular mission assigned to each.

3. The number and composition of the detachments of trench cleaners, their missions. The latter should be in accordance with the orders of the major.

4. Assignment of missions and routes to the reinforcing platoons. These platoons may have withdrawn from them some men for the squads of trench cleaners.

5. The direction in which the various units are to attack given by the aid of the compass.

6. The distance between the various echelons.

7. The location of the captain if he changes position as the advance continues.

8. The hour of beginning the assault.

9. The manner in which the teamwork between the infantry and the artillery will be maintained, mainly by colored signal fires and bombs (cartridges, rockets).

10. The manner by which the captain and the platoons will let each other know their locations.

11. The liaison to be sought for with the adjacent units and the means to be adopted to secure this.

12. The conventions provided for in order to indicate the front line (to aviators), whether it be at a certain hour, upon a certain agreed line, or when called for.

13. The occupation of the position carried and the exploitation of success.

14. The equipment to be carried in making the assault.

15. The organization for replenishment of ammunition. V. B. grenades, bands of cartridges for the machine guns, clips for the automatic rifles; who will attend to these matters (one-

half of a platoon of riflemen from the company or the battalion); where these things will be obtained, and where they will be taken.

16. The location of the depots of material (barbed wire, sandbags, tools, etc.), intended to organize the portion of the front that is captured. One half of a platoon of riflemen of the company is charged with bringing this up.

17. The evacuation of the wounded.

*Remarks.*—In paragraph 9 of his combat order the captain must explain to the men how the artillery will advance its fire (barrage) successively during the course of the assault and, consequently, how the infantry must march, almost in the fire, by following as closely as possible behind the bursting shells. The officers do not carry the saber. They wear a uniform and carry an equipment similar to those of the men, with the insignia as inconspicuous as possible.

*The setting out for the attack and the progress in the hostile positions.*—At the precise minute that the signal is given the entire company rises and moves forward as one man. The two waves (lines) of each platoon, which are both located in the same parallel just prior to moving out get their distance on the march, each one knowing clearly beforehand where he is to march.

The first wave follows the barrage.

If the advance is normal the company advances without changing the dispositions which it had upon setting out. All of the noncommissioned officers do their best to preserve these dispositions up to the end. *Good order is more important than speed.*

If resistance is encountered, or the conditions are not favorable for the assault, the captain may be forced to change his dispositions. He pushes certain squads into the gaps and others receive the mission of taking the hostile resistance in reverse. These squads complete the task begun by the trench cleaners. They regain their companies as soon as possible. In a general way the companies rally while marching and keeping up the fight. The men strive during the mêlée to join the noncommissioned officers of their company who are still standing. These noncommissioned officers re-form the men into a skirmish line.



Thus order is restored, as much as possible, by a regrouping of the elements of the company. If contact with the enemy is lost, the captain at once rapidly throws out scouts to cover his front, or he may throw out a platoon for this purpose, being ready to back it up closely. It is necessary to act quickly; the sending out of these elements has no other aim than to prevent surprise. These patrols pass alongside of the communicating trenches in order to discover any flanking arrangements that the enemy may have installed there to sweep the zones between the trenches. The reconnaissance of objectives farther on is made by the firing line itself as it advances.

*Holding the conquered ground.*—When the company is stopped by an obstacle which makes it impossible to continue the advance, the first care of the captain must be to organize a new position far enough from the enemy to admit of a later artillery preparation, against that part of the hostile line opposite, when the time comes to resume the advance. This installation must take into account the safety of the flanks and the arrangement of machine guns and automatic rifles to bring a flank fire along the front of the position.

During the day, it is generally necessary to dig in as one best can wherever one may be. As soon as night falls, a modified trace is staked or marked out and the arrival of the tools, etc., is followed by putting regular working parties at it, and a normal trench is commenced, wire entanglements placed in front, and flanking defenses arranged. The captain restores order in the subdivisions of his company and makes one of them available, provided it is not already so.

*He establishes very carefully the liaison with the neighboring units on both sides of him.*

In rear of the line constructed by the units of the first line the reinforcing units construct points of support, which are closed works, shaped in accordance with (to fit) the existing hostile works, surrounded with barbed wire, and having arrangements for flanking fire. They also flank each other.

The selection of locations giving good views of the hostile position is of the utmost importance. Views of the hostile flank are particularly important. *The hostile observing stations are*

*pointed out without delay to the headquarters which makes them known to the artillery.*

To facilitate the rapid drawing up of reports all of the company commanders and chiefs of platoon are furnished with a certain number of sketches of the terrain and with memorandum pads with headings, instructions, etc., printed upon them.

*Employment of detachments of pioneers and sappers.*—When detachments of engineers have been assigned to the assaulting units, they must go forward the same as the other troops, but they must be considered as a reserve of technical workers, to be held ready for use when needed and not to be frittered away. These detachments may also receive the mission of joining up the parallel of departure with the captured hostile trench in order that uninterrupted communication may be insured. They should seek out any electric or other fuses that might lead to subterranean mines, and should render them useless.

#### DETAILS REFERRING TO THE COMPANIES OF THE SECOND LINE.

The commanders of these companies must continually have in view the *covering of the flanks of the companies which precede them*. The latter, thus rid of the embarrassment of attending to this matter, can concentrate all of their efforts upon the march forward. The commanders of the companies of the second line also have charge of the rallying of all of the reinforcements of the assaulting companies. Finally, they must not hesitate to join in the action on their own initiative when it is necessary; as for example, in order to cover a flank, exploit the success, stop a counter attack, etc.

This engagement without orders must take place only in case of *urgent necessity*. Theoretically, it is the duty of the battalion commander to order the entering into the engagement of part or all of the units at his disposition, in order to secure the continuation of the forward movement. Ordinarily these units should not be allowed to get out of his control and go and throw themselves into the first line, thus increasing its density and disorder. This danger is principally to be avoided when the line of combat is brought to a standstill before a hostile strong point. In such a case, the reinforcement will produce no result, and the bat-

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talion commander will prescribe for the support company, when possible, a maneuver by the flank. The support company must always be ready to execute just such a maneuver without delay.

It may be advantageous, with this aim in view, to call to the attention of those parts of the companies of the second line behind the flanks of the companies of the first line that they are assigned the mission, in advance, of seeking the hostile flanks in case the attack is brought to a halt. This has been stated already in the instructions to the support platoons.

### DETAILS CONCERNING THE HANDLING OF THE RESERVE COMPANIES.

The reserves (see fig. 289) are distinct from the support companies and do not form part of the assaulting waves (lines). They generally take the place of the assaulting companies in the parallels of departure as soon as the latter have evacuated them. The commander of a reserve unit usually posts himself by preference at the command post of the chief immediately in his front, in order to get more prompt information and to be able to send back more quickly the orders rendered necessary by the moving out to the attack. The counter attack is stopped by units in good order, well posted, and capable of delivering a powerful fire instantaneously.

Holding elements in rear of the attacking waves in good order, well in hand, provided with machine guns, choosing their positions, and capable of organizing these positions under conditions better than those of the first line—this constitutes the best means of certainly stopping a counter attack. It is not necessary that the numbers of troops assigned to this duty shall be very great. Sections or platoons, *mainly of machine guns*, will generally suffice. With an eye to the occupation of the conquered terrain, the reserves will immediately organize a series of strong points, forming a second line. The positions (trace of the works) are fixed by the battalion commander.

### THE BATTALION IN COMBAT.

Depending upon the length of the front assigned to him, the battalion commander will place one, two, or three companies on

the line. The companies of the second line take a thin approach formation, mainly making use of the line of squads in columns of files.

PLAN OF COMBAT.

The plan of combat for the battalion is based upon the same principles and treated under the same headings as those contained in the 17 sections laid down above, for the company. Besides these, the battalion commander must give orders for:

18. The cleaning up of the trenches and the evacuation of the prisoners.

19. The employment of the machine-gun company.

20. The employment of the rapid fire 1.5-inch gun.

21. The plan for the occupation of the hostile position if taken.

22. The reconnaissance of the next objective and the exploiting of success.

23. The organization of the ammunition supply.

24. The organization of the liaison (coordination as to information and tactical action, with other units of the command and adjacent units of other commands).

*Cleaning up the trenches.*—The cleaning up of the captured trenches is an extremely important operation, which must be carried out systematically and rapidly. Brave men, well commanded, are needed for this. *The plan of cleaning up the trenches.*—This plan is drawn up by the battalion commander in accordance with the orders given by the colonel. It is based upon the photographs taken by friendly aviators. These show the principal positions of the enemy's trenches and shelters. With the aid of this information, the battalion commander assigns the necessary force to clean up each group of hostile shelters, notifies the unit that is to furnish these, and tells each detachment what its mission will be as soon as the cleaning up is finished.

As a rule the cleaning squads are made up of squads of grenadiers (bombers) reinforced by a few riflemen. They are always commanded by noncommissioned officers. In certain cases these detachments may be as much as a half platoon or a platoon even. Sometimes a whole company will be charged

with the cleaning up of a particularly important point of support. *The trench-cleaning detachments never come from the assaulting platoons*, which need every man. They are taken from the support platoons or from the companies or battalions of the second line. In this latter case, it is well to attach them, a few days beforehand, to the company or companies with which they will advance. When the objectives of the companies of the first line are comprised in two lines of hostile trenches at some distance from each other, it is absolutely necessary to detail special detachments for the cleaning up of each of the hostile trench lines. But whatever may be the objectives of these various detachments, they *all* march behind the assaulting waves. Thus, they march in front of their own unit and not behind it, and receive the support of that unit, if it happens that they meet unexpected resistance at one or more points. Their task finished, the trench-cleaning detachments may be charged with the occupation and consolidation of the captured trenches. In this case they are given machine guns or automatic rifles. The detachments of trench cleaners march in line or in line of small columns, according to the necessities of the case. It is absolutely necessary to have frequent practice exercises in trench cleaning.

In making provisions for the evacuation of the prisoners, it can sometimes be arranged to have some of them assist the litter bearers in caring for the wounded.

*The machine-gun company.*—The machine-gun company is the powerful means at the disposal of the battalion commander to complete the action of his units by fire. As a rule it is employed:

At the beginning and during the progress of the attack.

For the occupation of the objective assigned.

1. *At the beginning of the attack*, the machine guns of the battalion of the first line accompany their battalion, in accordance with assignment previously made by the battalion commanders, and having in view their installation on the captured front. In general, they follow the battalion, each platoon having a very clear mission assigned to it, specified in the plan of combat. One platoon may be held in reserve for an unforeseen mission or to release a platoon destroyed. The automatic rifles seem to

suffice to maneuver the enemy by fire; hence the machine guns proper are becoming more and more a weapon of defense.

The machine guns of the battalions of the second line, placed beforehand at certain chosen points of the parallel of departure with good fields of fire, are advantageously used to cover the flanks of the battalions of the first line, sweeping with their fire the intervals which may occur between them, and especially the exterior flank of the whole.

When the form of the ground permits, it is equally to be desired that the machine guns should bring fire to bear on the hostile support and reserve trenches; upon the approach trenches; and such hostile machine guns as may be located, taking precautions, however, not to hit or inconvenience our own troops.

2. *After the attack has gained a foothold*, the battalion commander directs part or all of the machine guns to the positions which he has designated in advance, and which will secure to the best advantage, by direct and *flanking fire*, the possession of the terrain captured by his own and the neighboring battalions. It is always important to utilize to the greatest advantage and extent, the appliances for trench warfare, such as machine guns, automatic rifles, V. B. grenades, to help to hold the conquered ground.

The subdivision, then, of the companies placed along the front line should generally conform to the principle of placing the squads of automatic riflemen and V. B. grenadiers in the first line and to hold in support the squads of riflemen and grenadiers to meet possible counter attacks. It is likewise part of the duty of the battalion commander to dispose his machine gun company, the squads of automatic riflemen, and the groups of V. B. grenadiers of the company or companies in reserve, with a view to being able to reinforce the density of the fire in front.

*The 1.5-inch (rapid fire) gun.*—This gun is utilized as explained in Chapter V of Part IV.

*Plan for the occupation of the captured terrain.*—This plan is based on the orders received from the colonel drawn up in accordance with the plan of occupation published by the division commander. It consists of the following:

Assigning the troops who are to occupy the captured terrain.

Fixing the manner in which they will be divided up, both in breadth and in depth; the assignment of the machine guns and of the 1.5-inch guns.

Indicating the works to be constructed; the actual construction of the trenches and the communicating trenches; the division of the work between the various units.

Informing all of the locations of the depots of all kinds, such as those for tools, barbed wire, stakes, poles, sandbags, etc.

The selecting of the locations for the command posts.

*Reconnaissance of subsequent objectives and exploitation of success.*—The taking of the objectives assigned does not mark the end of the offensive of the battalion. It is exceedingly important:

(a) To regain contact with the enemy if it has been lost.

(b) To reconnoiter his new position.

(c) To make preparations for and then execute the movement forward which is destined to secure a new base of departure for another attack, or is made for the purpose of reaping the complete fruits of the success just won.

The resumption of contact and the reconnaissance of the new hostile position are accomplished by *contact patrols*, sent out by the troops of the first line as soon as they arrive upon the captured position. The objectives of these patrols are indicated by the battalion commander in his orders for the engagement. These patrols, composed of bombers (grenadiers) and automatic riflemen, supported by some riflemen, move rapidly toward their objectives. They install themselves in these and become the framework of a new line, which is occupied and organized (prepared for defense and offense) as quickly as possible.

Any gap noticed in the hostile organization is taken advantage of without delay. Enterprising infantry will always find opportunity to complete an initial success by carrying points of support which to-morrow it might cost a great deal to secure. *It is of the utmost importance to take possession at once of every point abandoned by the enemy.* The limitations prescribed as to not going beyond the assigned objectives does not mean the suppression of the spirit of enterprise. The battalion commander must not lose sight of the fact that exploiting success

is not done by the infantry alone, but *is secured by the assistance of the artillery.*

The progress to be made after the preliminary successes must have been studied in advance, with a view to coordination with the artillery and regulated in the minutest details to agree with the artillery action. This is the object of the *plan of exploitation of success*, which was mentioned above.

The attention of all officers and noncommissioned officers of the battalion should be called to the necessity of sending back frequent and quickly drawn up reports.

*A description of the organization of the ammunition supply will be found in Chapter XI of Part IV.*

NOTE I.—Referring to figure 278, and to the remarks on the characteristics of the general combat, we see that a combat such as has been described, is one like that which the companies in the sector C will be called upon to make. Observe that the companies of the sectors B and D, having been turned from their original direction by the necessity of encircling the resistances at N and N<sub>1</sub>, there will be an opening out of the companies in the sector C, which continue to advance in the interval. In fact, they are obliged to cover the parts of the front originally assigned to the companies in the sectors B and D.

This causes a spreading out of the first line at the very period in which it is most liable to receive counter attacks. These should be parried by the maneuvering of the reserves at E and F, which have been placed with this object in view behind the intervals.

NOTE II.—The intervals, which may easily be pierced by the attack, would become traps and nests of machine guns if the resistances at N and N<sub>1</sub> are able to continue their flanking rôle. It is absolutely necessary, therefore, to deprive them of it. The complete conquest of these strong points might be a severe and uncertain task, beyond the strength of companies such as those at A, B, and D, but it will suffice if they neutralize the parts of N and N<sub>1</sub>, which are really dangerous; that is, the borders (edges) and the places from which flanking fire and reverse fire may be delivered against the companies



moving to the front. Thus the companies of the sector A, although they attack to the front, as did the companies of the sector C, will employ quite different tactics. They will throw themselves at once into the hostile trenches and will undertake the combat in the communication trenches, which will hold the enemy with a minimum of men and without great losses. They should be very well supplied with grenades and sandbags. If they seek to carry several successive lines of trenches in frontal attack, as would be the case in the sector C, they would suffer considerable and useless losses. The companies of the sectors B and D will have to make an envelopment of the hostile points of resistance N and N<sub>1</sub>, quite difficult to carry out, but nevertheless quite necessary. The objectives to be given along the border (edge) of the hostile strong point are:

Those points along the edge able to bring flanking fire on parts of our line advancing to the front.

The rear part of the strong point.

The envelopment is made gradually, each platoon wheeling in its turn so as to successively mask the flank defenses of the enemy, in front of which the units that are moving to secure the more distant hostile objectives must successively pass (first wave, second wave, etc.).

The companies of the sectors B and D operate afterwards like the companies of the sector A.

## CHAPTER IV.

### LIAISON DURING THE ADVANCE.

*Liaison with the artillery.*—From the preceding chapters it can be seen that an advance is destined to be halted and is at the mercy of counter attacks if it is abandoned by its artillery. The artillery never abandons the infantry if it knows where they are and on what points they should fire to support or defend them. The composition and duty of the "liaison and observation detachment" sent by the artillery battalion to the infantry regiment which it is supporting have been given in Chapter IX, Book IV.

*Liaison with the commanding officer.*—The problem of informing the commanding officer of the points reached by the advance elements is one of the most difficult encountered. The company and battalion commanders should take every means to solve it. Their chances of safety and of victory depend on it. Successive changes of position of the command posts must be arranged for, they must be improved by the pioneers, telephone lines leading to them must be laid, and marks or directions indicating to any strange orderly where to find the command post must be placed. A well-drilled personnel for transmission of messages (signalers, liaison agents, runners), especially conversant with the operations about to take place, must be arranged for. Every means of transmission must be carefully organized and arrangements must be made for the replacement of carriers of special matériel in case they should fall, etc.

The means of communication, which have been explained in detail in Chapter IX, Part III, and Chapter IX, Part IV, are: The telephone, rockets and signal cartridges, sound signals, searchlights and panels with shutters, pigeons, runners, and, finally, signals by Bengal lights, panels, or searchlights to the aeroplanes and balloons, and transmitted by them to the corps commander.

It must be remembered that, in the employment of the latter means, the aeroplane rockets always apply to the infantry. One should learn to recognize an aeroplane or balloon belonging to his division.

It should be remembered that the commander is impatiently waiting for information, and that he can not take action until he knows what is going on in front. Never neglect any opportunity for communication; employ several different methods simultaneously. Before demanding artillery fire or making signals with the object of tracing the contour of the advance line, a company should always make sure that there is no friendly element in advance of them. In the confusion of battle, reinforcements and troops making a counter attack, being poorly supplied with information and sustaining losses, often think they have arrived on the first line before they have reached it. This will result in bitter mistakes, as they will either open fire or will demand barrage fire in front of them.

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*Liaison with neighboring units.*—This liaison is regulated in the last paragraph of the plan of the battalion commander (see above). It is particularly important when the neighboring unit is a different regiment. There is always an instinctive tendency in each unit to close in toward the center, and this takes place even when the objectives have been carefully pointed out in order to avoid it. Consequently, it is a good plan to have a half platoon, a platoon, or even more march on the flank of the battalion, abreast the companies of the second line, and charged with keeping contact with the adjacent battalion or regiment. The platoon commander keeps his command in small columns; observes carefully how the action is going, and extends or deploys abreast of the first line if an appreciable gap has occurred between the two battalions with which he is charged to maintain contact.

*Personnel grouped around the battalion and company commanders.*—The division of the company into combat sections and soldiers not included in these sections, the extension given to certain specialties (signalers, pioneers, etc.) have resulted in bringing together around the captain or the battalion commander a certain number of men who get in the way at the post of the commander and in the battle if they have not been assigned a place or duty while waiting until they are needed. This personnel, which may be called captain's group or battalion commander's group, should under all circumstances stand, move, and maneuver as a small supplementary section, under the command of the quartermaster corporal for the company and the battalion sergeant major for the battalion. They should always be arranged in the same order, in order that their presence can be instantly verified, their replacement assured, and they can be found when they are needed. In battle they are not allowed to collect around the commander; they are kept in formation similar to the other fractions of the company, and are required to march in their assigned place and to leave it only when called.

The two tables below are given as suggestions.

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## CAPTAIN'S GROUP.

	Not included in the combat sections.		Included in the combat sections.	
	Com- pany.	Platoon:	Com- pany.	Platoon.
Noncommissioned officer, chief of the cap- tain's group.....	1			
First group, liaison agents:				
Drummers and buglers.....		3		
Bicyclists.....		1		
Second group, signaling and observation:				
Bugler.....		1		
Signalers.....		2		
Observers.....				1 2
Third group, pioneers.....		4		
Fourth group, runners:				
Company.....				2 4
Battalion <sup>4</sup> .....			3 1	3 4

<sup>1</sup> Included in a squad of riflemen.

<sup>2</sup> Included in 2 squads of riflemen.

<sup>3</sup> Included in 2 squads of riflemen.

<sup>4</sup> The group of battalion runners is only sent to the battalion commander on his order.

NOTE.—It follows that—5 squads of riflemen detach 2 men each; 2 squads of riflemen detach their corporal (courier corporal and mess corporal) and are commanded by privates of the first class.

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## BATTALION COMMANDER'S GROUP.

	Belonging to battalion staff.				Drawn from—	
	Offi- cers.	Non- com- mis- sioned officers.	Com- pany.	Pla- toon.	Head- quar- ters com- pany.	Com- panies.
<b>4. To the battalion commander's command post.</b>						
<b>First group, command:</b>						
Adjutant .....	<sup>1</sup> 1					
Sergeant major .....		<sup>1</sup> 1				
Noncommissioned officer of attached cavalry .....		<sup>1</sup> 1				
Noncommissioned officer of information .....						<sup>1</sup>
Corporal of the field music .....			<sup>1</sup>			
<b>Second group, liaison agents:</b>						
Sergeants .....						<sup>3</sup>
Noncommissioned officer, li- aison agent of machine-gun company .....						<sup>1</sup>
Cyclist .....				<sup>1</sup> 2		
<b>Third group, telephone operators:</b>						
Sergeant .....					<sup>1</sup>	
Corporals in charge .....					<sup>2</sup>	
Telephone operators .....					<sup>10</sup>	
<b>Fourth group, signalmen:</b>						
Corporal and signalmen .....			<sup>1</sup>	<sup>4</sup>		
Pigeon men .....						<sup>2</sup> 2
<b>Fifth group, runners:</b>						
First company, 1 corporal and 4 messengers .....						<sup>2</sup> 5
Second company, 1 corporal and 4 messengers .....						<sup>2</sup> 5
Third company, 1 corporal and 4 messengers .....						<sup>2</sup> 5
<b>Sixth group, pioneers:</b>						
1 corporal of pioneers .....					<sup>1</sup>	
8 pioneers .....					<sup>8</sup>	
<b>Seventh group, artillery liaison:</b>						
As ordered .....						
Variable strength .....						

<sup>1</sup> One sent to the colonel.

<sup>2</sup> When the battalion is assigned a lookout station.

<sup>3</sup> Provided to allow the battalion commander (1) to furnish the colonel with 1 corporal and 4 messengers; (2) to keep two similar detachments for himself.

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## BATTALION COMMANDER'S GROUP—Continued.

	Belonging to battalion staff.				Drawn from—	
	Officers.	Non-commissioned officers.	Company.	Platoon.	Headquarters company.	Companies.
<i>B. To the battalion dressing station.</i>						
Surgeon, battalion.....	1					
Assistant surgeon.....		1				
Stretcher bearers <sup>1</sup> .....			1	16		
Attendants.....						24
Cyclist.....				1		

<sup>1</sup>

<sup>1</sup> The other 12 stretcher bearers are sent to the regimental dressing station.

<sup>2</sup> Rejoining their company if it is detached.

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